AirVision

Agilaire LLC

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Introduction to

AirVision Concepts

Welcome to AirVision, the first software that addresses current air monitoring needs while accommodating future technical innovations. Developed by industry veterans and engineered from the ground up in response to users' needs, AirVision is the first software to successfully combine:

- Open data acquisition and import
- Combined -Data and Quality Assurance tools
- Post-processing/Workflow
- User-defined shortcuts for communication activities
- Sophisticated data relationships

Open Data Acquisition and Import

AirVision supports an open system of modular drivers that can be added to provide connectivity to any source of data. The driver manages the details of data collection and uses standard interface to exchange data with AirVision's core. Third parties and end users can construct new drivers for AirVision, providing an open solution to manage future requirements. AirVision is designed specifically along the concept that eventually networks (or significant parts of networks) will consist of smart instruments connected to a central AirVision data management hub through broad-band connections.

To normalize these data sources, AirVision utilizes an open system that allows any end user or company to develop drivers for a particular data source. The driver incorporates all the necessary knowledge and logic to collect data and return data to the database through a standardized data access layer.

Combined Data Editing and QA Tools

To optimize quality assurance, AirVision opens up the process between data collection and final reporting through an open modular approach. Open Data Processors can be scheduled and triggered by the Task Manager to automate quality assurance while also controlling the points of data access and display, such as AIRNow and web presentation.

The Automatic Data Validation Processor Module (ADVP) assigns a quality grade (1-10) for each data point based initially on instrument/data logger flags, but allows you to generate rules that affect the quality code. The ADVP can be triggered to run automatically after data collection to grade each data point, and the quality grade can be used to prevent suspect or bad data from being published to the web or shared with other organizations.

The grades can also be used to focus quality assurance efforts on the most suspect data points Data can be compared against other parameters at the same site, different sites (spatial testing), or historical composite values for that particular parameter and/or site (e.g., comparing this hour's value to the same hour and day of the week over the previous five years). ADVP functions also include persistency checks.

Post-processing/Workflow

AirVision's post-processing of data is not limited to data editing and other manual functions. Its powerful and expandable data post-processing capabilities optimize the quality assurance process.

AirVision opens up the process between data collection and final reporting through an open modular approach similar to Open Data Sources. Open Data Processors can be scheduled and triggered as defined by you in the Task Manager to automate quality assurance while also controlling the points of data access and display, such as AIRNow and web presentation.

These post-processing tasks can include:

- AQI calculations and forecasts
- Automatic data validation
- Zero or other calibration data adjustments
- Automated AQS coding
- Web publishing, tables, real-time charts and maps
- AIRNow or real-time Exchange Network transfers
- Email alarms
- Emailed reports
- Time skewing tape sampler data

The open approach also ensures that known data paths can be easily updated to meet changing requirements, such as future alterations in the AQI calculation process (changes based on new standards, possibly including more complex algorithms that take into consideration the synergistic health effects of PM and ozone, requiring a multi-variate algorithm to calculate a more representative measurement of health effect).

User-defined Shortcuts For Communication Activities

The parameter editor allows you to define parameter data. In AirVision a parameter can come from any kind of data source--it is no longer correlated with data logger channels. The parameter editor contains basics such as units, EPA reporting codes, and graph limits. This editor allows you to enter/modify a list of parameter types that each parameter can be referenced to, so the application can more easily correlate parameters with different names (e.g., "O3" vs. "OZ" vs. "OZONE").

In E-DAS Ambient, many of these configurations had to be repeated for the same parameter at multiple sites, or an assumption was made regarding parameter names, such as ozone, to avoid the need for repetitive configuration entries. AirVision avoids the problems associated with this approach by using **EPA Parameter Names** and **Parameter Categories**.

Linking parameters to parameter types makes reporting easier and eliminates the necessity to link individual selections together (e.g., for AIRNow reporting). Instead, details can be configured for an EPA parameter type. The Parameter Template Editor can be used to add new template definitions if a suitable one cannot be found in the default list.

Parameter information can be auto-filled by selecting a parameter template and the option to auto-fill EPA codes and units. Units are selected from a pick list, so that unit conversions (e.g., ppm to ppb) and unit types (e.g., whether rainfall or solar radiation is totaled, not averaged) are handled automatically. The parameter editor also supports the designation of alternate analyzer units that differ from reporting and editing units for digital data acquisition where the analyzer reports data in units different from from those the customer prefers (ppm vs. ppb). The conversion is handled at the time of data acquisition (polling, file import) and data is stored in the regular EPA units in the database.

In both the site and parameter editors, you will be able to create meta-data fields to handle customer-specific data fields, such as analyzer serial number and installation date.

Sophisticated Data Relationships

Our Agilaire customers have requested that AirVision handle new and more complex data relationships such as managing data from parameters in a hierarchical fashion.For example, PM filter data that may exist both as a total mass/concentration value, but also may consist in detailed breakdowns from speciation monitors or XRF (X-ray fluorescence) lab data. AirVision supports these relationships as part of its original design, a feature unique in its industry rather than as an afterthought or modification to an existing database.

Parameter configuration also allows the designation of a parent parameter to form parent-child relationships that can be used to drill down in the data editor. A typical example is designating analyzer diagnostic parameters, such as sample flow and box temperature, to be children of the primary analyzer pollutant value (e.g., NOx), so that a suspect reading could be investigated by drilling down in the data editor. Another use could be to group parents & children in a columnar data report.

Chapter 1

Installing AirVision

We need to revise the system requirements section (Kathleen is currently drafting the update for that I believe). Also note that .Net 4.5 will be required in 2014.

AirVision must be installed on XP Pro / Server 2003 or better (through Windows 7/8 or Server 2008R2). 4GB of RAM is recommended. Before AirVision can be installed, the following software must be installed on your computer: **SQL Server 2008**, **SQL Server 2012,** or **SQL Express** with all available service packs, as well as **.NET Framework includes versions 3.5SP1 and 4.0**. SQL will request that the Windows Component **Internet Information Services (IIS)** be added, but IIS is NOT necessary for AirVision and does not have to be enabled.

Installing Microsoft .NET Framework

If you don't already have .NET Framework versions 3.5SP1 and 4.0 installed on your computer, you can download it from the Microsoft website. Follow the instructions in the installation wizard.

Installing SQL Server

Before SQL Server can be installed, .NET Framework both versions 3.5SP1 and 4.0 must be installed.

⇨ **Important!** Although AirVision will operate with either SQL Server or SQL Express, SQL Express has a file size limit of 4G, so if you convert files from E-DAS Ambient to AirVision (i.e., to SQL files) you will run out of room quickly in SQL Express, especially if you are converting and collecting minute data. Even though SQL Express is a free download, Agilaire recommends that you start with the full version of SQL Server 2008 or 2012 to avoid upgrading later. SQL Express will stop functioning when it has reached its capacity of 4G.

To install SQL Server or SQL Express, insert the CD or DVD and follow the instructions in the wizard. In the first screen check the box to accept the license agreement and click **Next**.

The default features are sufficient in the **Feature Selection** screen, but you can select the program features you want installed. The most important feature to install is **Client Tools**. Click **Next**.

- Selecting the 'default' install instance is acceptable.
- System and Local Service accounts should be selected if not prepopulated.
- A desired user should be added as a **admin.**

Agilaire recommends **Windows Authentication Mode** if AirVision and the SQL database reside on the **same** PC. The purpose of Authentication Mode is to specify the security used when connecting to SQL Server. If you select **Windows Authentication Mode** a password is not required. If the SQL database is on a **different** computer from AirVision, select **Mixed Authentication Mode** when you're installing SQL. **Mixed Authentication Mode** is also recommended for **AV-Trend** systems if you intend to use remote synchronization functions.

If you select **Mixed Mode** (a combination of Windows Authentication and SQL Server Authentication) you must enter and confirm a **password** for the System Administrator. Click **Next** to continue.

The remaining setup screens are self-explanatory. Follow the directions and click **Finish** in the **Completing Microsoft SQL Server 2008 Setup** screen .

▶ **Note:** If you set up SQL in **Windows Authentication mode**, you must must log in to SQL with Windows Authentication, not SQL Server Authentication, or the AirVision Service won't start.

▶ **Note:** If you install **SQL ServerExpress**, **Management Studio** (free download) is a separate installation. SQL Express must be installed first, before Management Studio. Management Studio will not work without SQL.

⇨ **Important!** If SQL Express is installed on the same computer as AirVision Server, **the SQL Express login name** must be **.\SQLExpress** instead of your computer name.

Installing the AirVision Database

After you have installed SQL Server:

1. From the Windows **Start** menu, select **All Programs** > **Microsoft SQL Server 2008** (or **Microsoft SQL Server 2008**) > **SQL Server Management Studio**.
2. Right-click the **Databases** folder and select **New Database**. For the **Database name**, enter **AVData** and click **OK**.
3. **Click** to select the database you just created (AVData).

First-time Installation of the AirVision Database

1. If you are installing AirVision for the first time, insert the installation CD and browse to the folder **Database_Freshinstall** (double-click to open **My Computer**, then right-click the **CD drive** and select **Open**). Within the folder **Database_Freshinstall** double-click **AVReleaseCreator.sql**. The script should open in the **AVData** folder in SQL.
2. Click **! Execute** to run the query. The query will install the SQL tables needed to run AirVision. The bottom of the query screen will display the results of the query. Any error messages will be listed by line number. Be sure to save any error messages in case you need to call Agilaire Support for help.

I think we should only recommend mixed mode in the SQL install guidelines, it provides a 'backdoor' to access SQL in case of Windows authentication issues.

Installing the AirVision Server

▶ **Note:** If you are upgrading to AirVision 2.1 or higher from a previous version, you no longer need to uninstall the old version before you run the new Server installation.

1. After you have run the appropriate scrip to install the database for the first time or upgrade the database as described in the previous section, continue to browse the AirVision installation CD (double-click to open **My Computer**, then right-click the **CD drive** and select **Open**). Double-click to open the **Server** folder
2. Within the **Server** folder, double-click to open the file **AVServerSetup.msi** to install the server part of the AirVision software for new installations, or **setup.exe** for upgrades.
3. When the installation begins, most of the screens are self-explanatory.
    - You will want to review and accept the **End-User License Agreement** in order to proceed with the install.
    - The default install directory is C:\Program Files\Agilaire LLC\Server (you can also browse to change the install directory if desired).
4. Click **Next** to accept the default destination directory (C:\Program Files\Agilaire LLC\Server) or browse to change the directory and then click **Next**.
5. The final screen will say the AirVision Server has been successfully installed. Check the selection box to launch the **Server Settings Editor** and click **Finish**.
6. You will be prompted if you want to install the AirVision Client. If you do not want want to install the Client, unclick this box.

Installing the AirVision Client on Secondary Computers

▶ **Note:** If you are upgrading AirVision from a previous version, you no longer have to uninstall the old version before you run the Client installation.

1. After you have installed the AirVision Server and the AirVision SQL database, continue to browse the AirVision installation CD (double-click to open **My Computer**, then right-click the **CD drive** and select **Open**). Double-click to open the folder **Client**. Within the Client folder, double-click to run **AirVisionClient_Installer.exe**. Click **Next** in the first screen to continue.
2. Accept the license agreement and click **Next**.
3. Enter your **User Name**, **Company Name** (optional), and the unique **Product ID** (required) supplied by Agilaire. Click **Next**.
4. Click **Next** to accept the default destination directory (C:\Program Files\Agilaire LLC\Server) or browse to change the directory and then click **Next**.
5. The final screen will say the AirVision Client has been successfully installed. Click **Finish**.

Running Standard or Enterprise SQL Server 2008 or 2012

If you installed AirVision using either Standard or Enterprise SQL Server for your database, click the **Test Connection** button after the installation. You should see a message box saying your connection was successful.

Running SQL Server Express

If you are running SQL Express 2005 or 2008, you will need to make a change to the Database Server field in the Server Settings Editor (Windows **Start** menu/Agilaire LLC/AirVision/Server Settings Editor) for both the **Default Connection Settings** tab and the **Advance Settings** tab. Replace **local** with the name of the computer along with \SQLEXPRESS. For example, if the computer name is **yourcomputername**, then you would replace local with **yourcomputername\SQLEXPRESS**.

- **Note:** If you don't know your computer name, right click the **My Computer** icon on the Windows Desktop, select > **Properties** > **Computer Name** tab, and find **Full computer name**: The name given before the first period in the path is the computer name. The name given after the first period is the domain name, which is not needed for this step.

Don't make any other changes. Don't add any other characters or spaces or delete any previously existing characters or spaces because unnecessary changes can cripple the operation of the conversion utility. After you have replaced **local** with **yourcomuternamе\SQLEXPRESS**, save and close the file, then click the **Test Connection** button. If a successful message box pops up click **OK**, then click the **Save** button at the bottom right. You will not see anything happen when the **Save** button is clicked. After saving click the **X** button in the top right corner to close the screen.

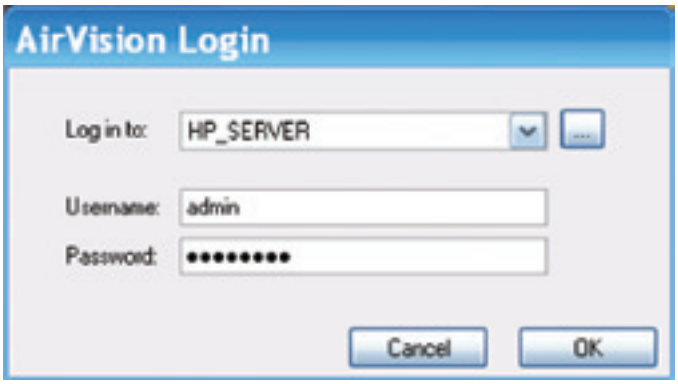
Logging In to AirVision

Double-click the AirVision icon on your desktop and log in to the AirVision Client. If you are logging in for the first time click the square button to open the **Profiles** screen.

In the Profiles screen, click the Add **Profile** button and enter the name of your executive (computer where the AirVision server is installed) for the **Profile Name**. (If you don't know the computer name, right-click the **My Computer** icon from the Windows **Start** menu on the computer where the AirVision server is installed. Select **Properties** and open the **Computer Name** tab.)

Enter **admin** as the **Username**, click **Set Password** and enter **Agilaire**. Enter the **Service Gateway URL**, e.g., tcp://myserver:9885/ where "myserver" is the same as the Profile Name. The URL must match this format exactly, including the forward slash at the end.

Click the **Test Connection** button to see if AVTrend is communicating with the database.



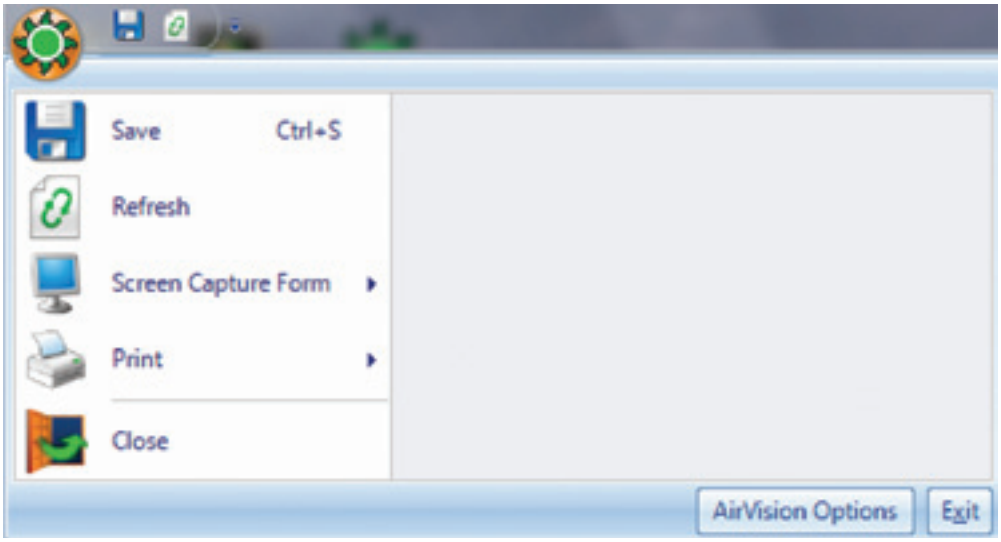
AirVision Login

Air Vision Profiles

Accessing Profiles After Logging In

After you are logged into AirVision, you can access the Profiles screen by clicking the AirVision icon in the upper left corner of the screen (beside the **Save** icon). From this Profiles screen you can:

- **Save**
- **Capture** the AirVision screen
- **Print**
- **Close** the Profiles screen.
- You can also open **AirVision Options**, which brings up the same Profiles screen you saw when you logged in.
- You can close AirVision altogether by selecting the **Exit** button.



AirVision Profiles seen by clicking the AirVison icon in the upper left corner of the AirVision screen after you have logged in

Chapter 2

Configuring AirVision

AirVision provides nearly unlimited flexibility in setting up systems and configuring servers. This chapter explains how to set up the following parts of AirVision:

- Configuring System Preferences
  Configuration Editors > Site/Parameter
- Configuring Server Preferences
  Configuration Editors > Server Configuration
- Setting up Sites and Parameters
  Configuration Editors > Site/Parameter
- Configuring Parameter Templates
  Configuration Editors > Parameter Template Editor
- Configuring File Import Templates
  Configuration Editors > File Import Configuration
- Adding Loggers to Sites
  Configuration Editors > Server Configuration
- Adding Channels to Data Loggers
  Configuration Editors > Data Source Details
- Adding Communication Routes
  Configuration Editors > Server Configuration
- Associating a Logger to a Logger Driver
  Configuration Editors > Server Configuration
- Testing Your Connection
  Utilities > Link to Logger
- Downloading Configurations
  Utilities > Logger Download
- Setting up Calibrations
  Configuration Editors > Data Source Details
- Scheduling Tasks
  Configuration Editors > Task Scheduler

- Adding E-Mail Service to the Executive
  Configuration Editors > Server Configuration > Double-click Executive in Tree Menu > Service Components tab
- Adding Users and Email Addresses
  Configuration Editors > Security > User Editor
- Configuring SMTP Settings
  Configuration Editors > Server Configuration > Double-click Email Service in Tree Menu
- Scheduling Email Alarms
  Configuration Editors > Email Alarm Trigger Editor
- Adding Recipients to the Notification Subscriptions
  Configuration Editors > Notification Subscriptions
- AIRNow / FTP Setup
  Configuration Editors > Report Configurations > AIRNow/FTP Setup
- Scheduling Tasks
  Configuration Editors > Task Scheduler
- Schedule Task Wizard
  Configuration Editors > Task Scheduler > Run Schedule Wizard
- Task Display
  Utilities > Scheduled Task Status
- Favorites Editor
  Configuration Editors > Favorites Editor
- Configuring Security
  Configuration Editors > Security
- GSI Driver Editors
  Configuration Editors > GSI Driver Editor
- AQI Program Editor
  Configuration Editors > Report Configurations > AQI Program Editor
- Configuring Reports
  Configuration Editors > Report Configurations

For information about starting the AirVision Service and logging in to AirVision, see “Chapter 1 Installation.”

Configuring System Preferences

To set up system preferences, open the **Site/Parameter** screen from **Configuration Editors** and double-click the **System** icon. The System is the agency or area, such as Knox County or State of Tennessee. Typically, each agency setup will only have one System, but it is possible to set up more than one by clicking the **Add System** button. (A second system could be used to help separate, for example, air toxics or water quality data from the other quality data).

Enter the following:

System Name
County Code (provided by EPA)
Agency Code (provided by EPA)
Time Zone.(select from a drop-down list).

▶ **Note:** All fields must be filled in to run an AQSCSV Report. This optional report module supports the proposed changes for submission of data to the AIRNow site. Once configured, the report can be run, scheduled, and transmitted, just like the OBS-style AIRNow report.

Click the **Save** icon.

System Configuration from Site/Parameter Config Editor

Importing (Converting) E-DAS Data

If you will be using existing historical data from E-DAS Ambient systems, the AirVision E-DAS Import Utility (Utilities>EDAS Import) can convert it to AirVision data with sites and parameters configured. In the E-DAS Ambient to AirVision Conversion screen, browse to find the **E-DAS Ambient Data Directory.**

Select:
Data Type(s) to be converted:

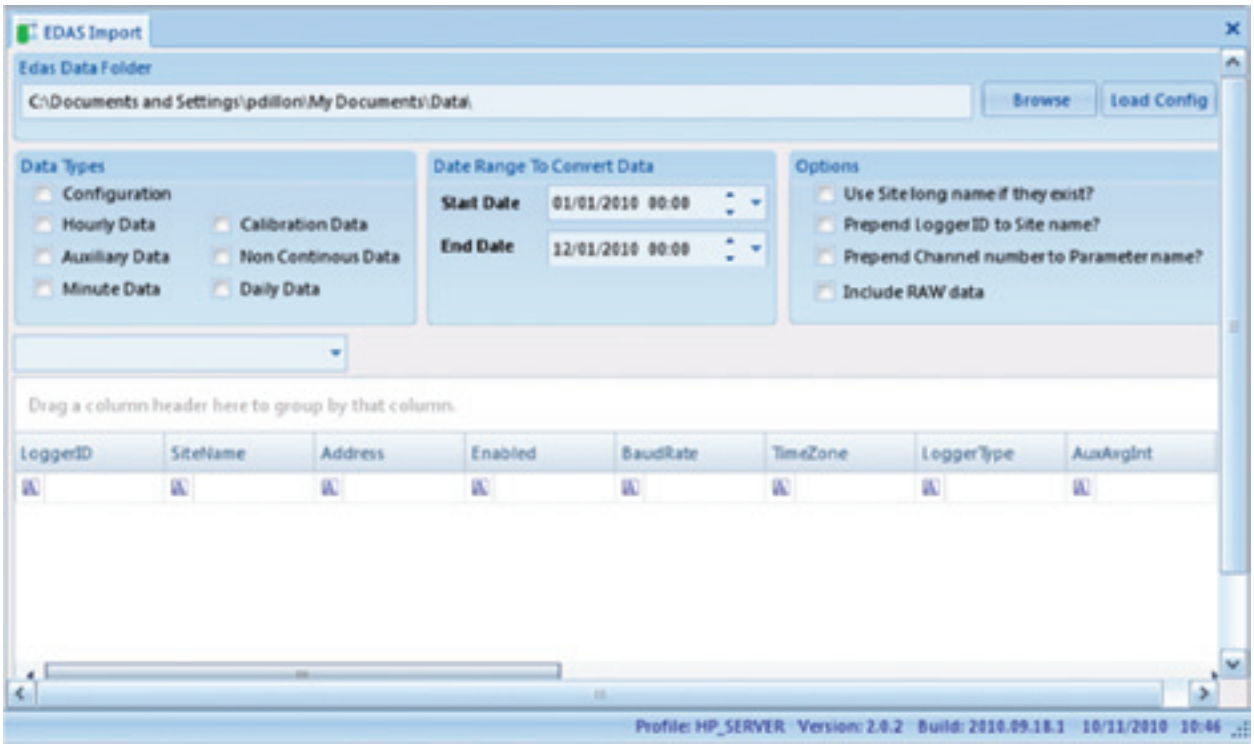
- Configuration
- Hourly Data
- Auxiliary
- Minute Data
- Calibration Data
- Non Continuous Data
- Daily Data

Date Range.

Options are:

- Use Site Long name if they exist
- Append Logger ID to front of site name
- Append Channel Number to Parameter name
- Include RAW data

Converted data will be in your SQL database in AVData and available when you open AirVision. Some configuration information may be missing, such as central modem settings and scheduled tasks.

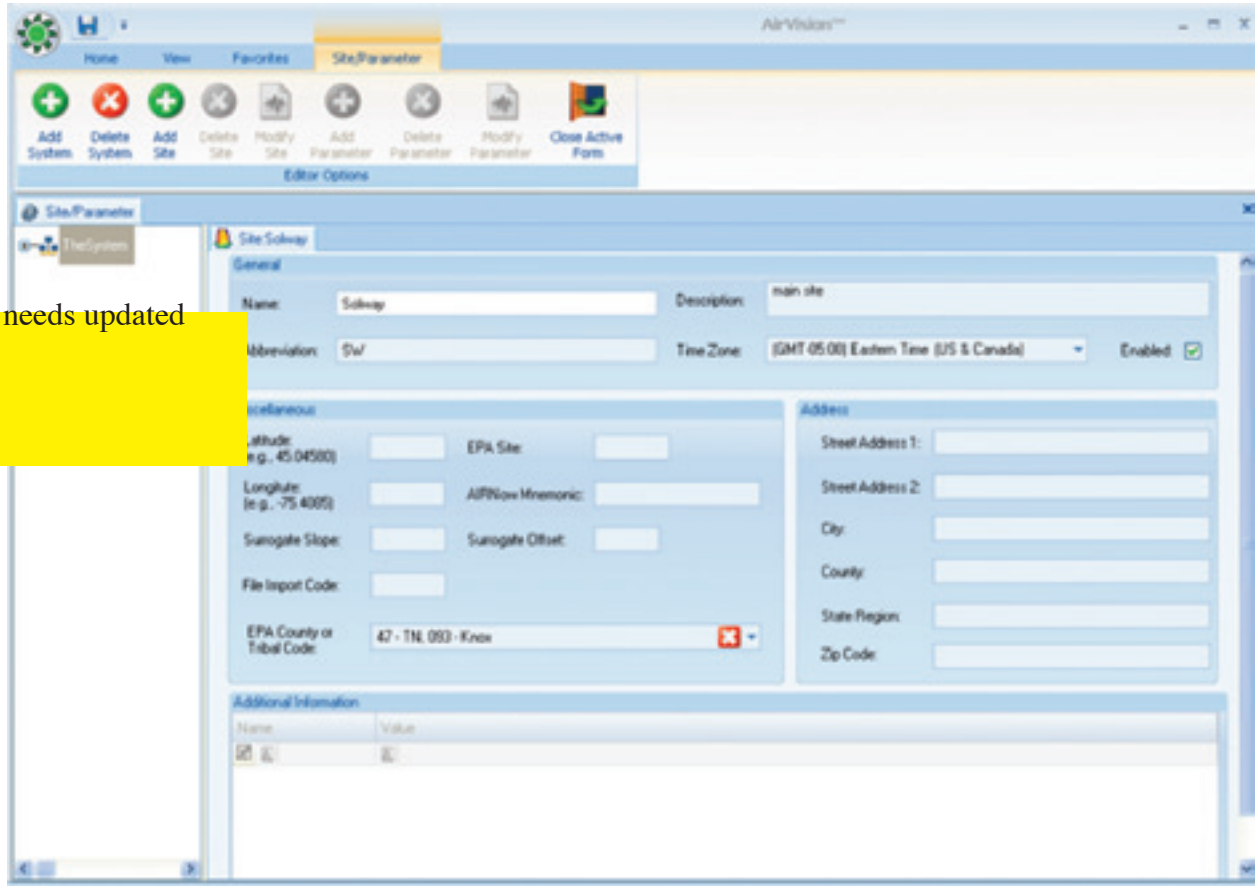


Converting E-DAS data to AirVision

Site and Parameter Setup

The **Site/Parameter Editor** from the **Configuration** menu allows administrators to add, edit, and delete sites and parameters. In AirVision, a Site is NOT a single data logger as it was in E-DAS. A **Site** is a logical organization of a physical monitoring area and can contain data from several sources, such as data loggers, PM samplers, and directly polled analyzers.

screenshot needs updated



Site Configuration from the Site/Parameter Editor in Configuration Editors

Adding and Editing Sites

To add a site, select **Configuration Editors** > **Site/Parameter**, and highlight your **System name**. Click the **Add Site** button and enter a **Name** for the **Site**.To edit a Site, double-click a **Site** from the Site/Parameter tree.

To save new or edited sites, click the **Save** icon from the upper left-hand corner of the AirVision screen, or click the Agilaire icon and select **Save**. Fields in the Site Configuration Editor are described below.

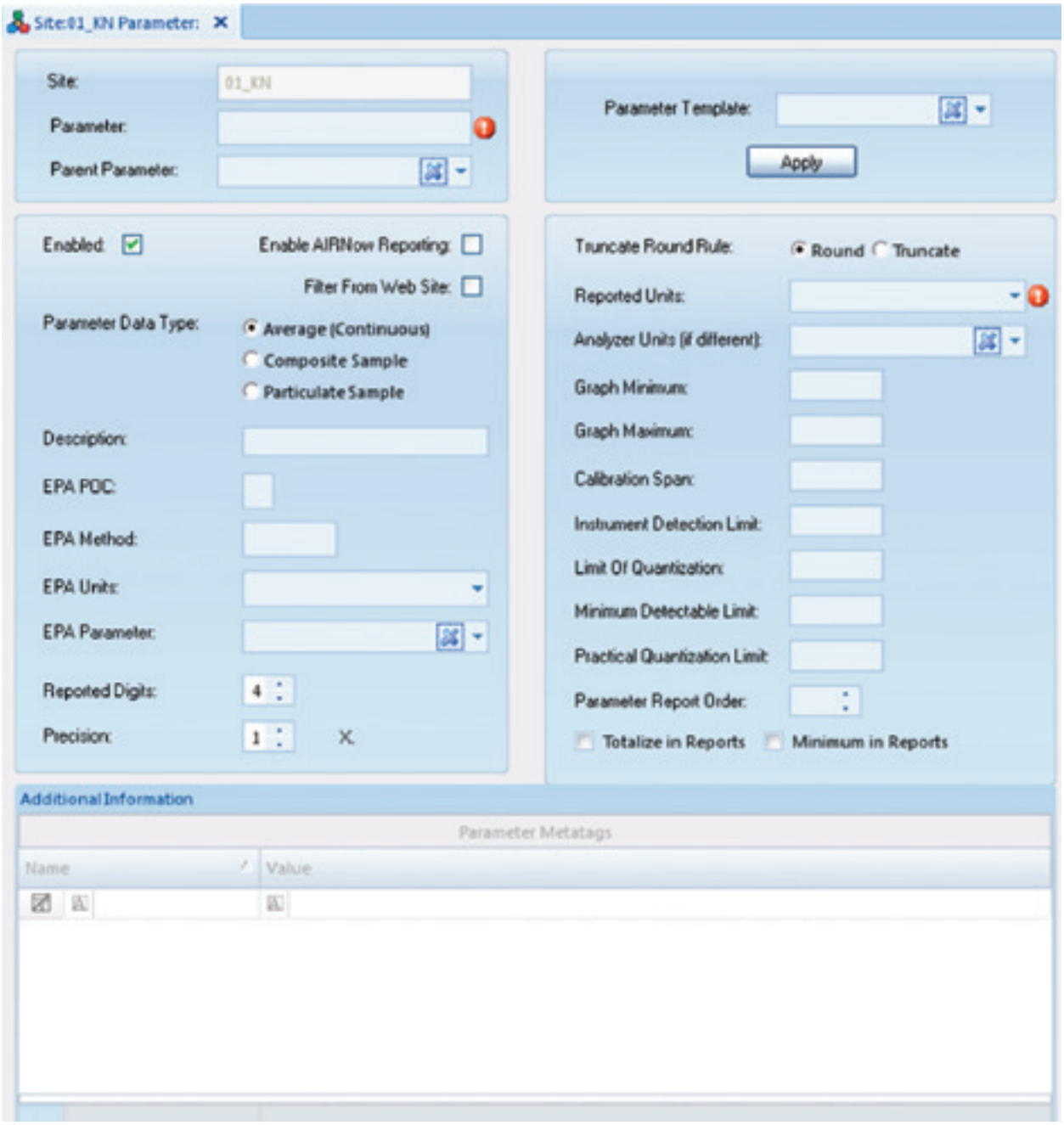
The Site Editor contains the following fields for information about the site:

- **Name (Required)** — Alphanumeric characters to refer to the site, e.g., NKnox
- **Description** — Brief description of the site, e.g., North Knoxville (optional)
- **Abbreviation** — This field is used for special file import formats only.
- **Time Zone (Required)** — Select from drop-down list.
- **Enabled (Required for polling)** — Check the box to enable the site. If this box is not selected the site will not be polled.
- **Latitude** — To comply with EPA standards, enter latitude in decimal format. For example, 75 degrees, 15 minutes, and 0 seconds would be entered as 75.250000. Enter up to 2 places and a minus sign if needed to the left of the decimal and up to 6 places to the right of the decimal.
- **Longitude** — To comply with EPA standards, enter longitude in decimal format. For example, 75 degrees, 15 minutes, and 0 seconds would be entered as 75.250000. Enter up to 2 places and a minus sign if needed to the left of the decimal and up to 6 places to the right of the decimal
- **EPA Site** — Two-character site code provided by EPA
- **AIRNow Mnemonic** — Optional reference for internal use only--not used by EPA
- **Surrogate Slope** — Used to calculate a projected (forward rolling) eight-hour average for ozone if needed, computed with the slope/intercept formula required by EPA
- **Surrogate Offset** — Used to calculate a projected (forward rolling) eight hour average for ozone if needed, computed with the slope/intercept formula required by EPA

- **File Input Code** — Single character used for file import templates in special cases only
- **EPA County or Tribal Code** — County or Tribal code provided by EPA
- **Address** — Physical address of the Site
- **Additional Information** — You can add notes at the bottom of the Site Editor by clicking on the asterisk at the bottom of the screen. Enter a **Name**, for example "Distance to tree line," and a **Value**, for example "70 feet." When you have completed your entry press the **Enter** key on your computer keyboard. Your entry will be moved to the next row in the Additional Information section.

Adding and Editing Parameters

To add a parameter configuration, select a **Site** from the **Site/Parameter** tree and click the **Add Parameter** button near the top of the AirVision screen. To edit a parameter select a **Site** and then double-click a **Parameter**.



Parameter Configuration from the Site/Parameter Editor in Configuration Editors

The **Parameter** screen displays the following fields:

- Site — The Site you selected in the Site/Parameter tree will automatically be displayed.
- Parameter — Alphanumeric characters to identify the Parameter
- Parent Parameter — A Parent Parameter can be designated to form relationships that can be used for drill-down in the Data Editor. For example, a primary analyzer pollutant such as NOx could be a parent and designated diagnostic parameters such as sample flow or box temperature could be children. Another example would be to assign particulate parameters as parents and metals for XRF (X-ray fluorescence) analysis as children. If the parameter has a parent parameter, select it from the drop-down list.
- Parameter Template — Parameter information can be filled in automatically by selecting a Parameter Template, which will set up EPA codes and units. Basic Parameter Templates are provided in AirVision. They can also be configured in the **Parameter Template Editor**, which defines basics like units, EPA reporting codes, and graph limits. (See "Configuring Parameter Templates.") You shouldn't have to make changes to the Parameter Template unless the defaults become outdated by changing EPA regulations. If you want to automatically fill in parameter information using a template, select a parameter template from the drop-down list and click **Apply**. If you have converted your data from E-DAS and the information is already filled in, you can still select a template but no NOT click Apply or it will be overwritten.
- Enabled — Check the box to enable the parameter.
- Enable AIRNow Reporting — For AIRNow parameters only, check the box to include this parameter in AIRNow reports. Submitting AIRNow reports consists of three steps:
  Check **Enable AIRNow Reporting** in the **Site/Parameter setup**,
  Enter **AIRNow Transfer Details** in **AIRNow/FTP Setup** (**Configuration Editors**),
  Schedule **AIRNow FTP Transfer task** in **Task Scheduler** (**Configuration Editors**).
- Filter from Web Site — Check the box to filter data from website.

- **Parameter Data Type** — Select a data type: **Average (Continuous)**, **Composite Sample**, or **Particulate Sample** (for manually entered data).
- **Description** — Enter a brief description of the parameter (optional).
- **EPA POC** — Enter an EPA Parameter Occurrence Code if needed. POC is used for different monitors measuring the same parameter at one site.
- **EPA Method** — EPA sampling Method Code
- **EPA Units** — Select EPA Units (including the EPA unit code) from the drop-down list (e.g., 007-parts per million, 015-degrees Fahrenheit).
- **EPA Parameter** — Select a parameter (including EPA parameter codes) from the drop-down list (e.g., 44201 - Ozone).
- **EPA Reported Digits** — Total number of digits, including decimal places, that will be reported to the EPA.
- **EPA Reporting Precision** — Number of decimal places for reporting precision.X's and Y's to the right of the reporting precision field illustrate the format of the digits/precision, e.g., XX.YY indicates a total of four Reported Digits with a Reporting Precision of two.
- **Truncate/Round Rule** — Determines whether data in reports will be rounded or truncated
- **Reported Units** — Units that will be used for reports e.g., PPM
- **Analyzer Units** — If the analyzer units are different from the primary parameter, select analyzer units from the drop-down list.
- **Graph Minimum** — Lower y-axis limit for graph display
- **Graph Maximum** — Upper y-axis limit to for graph display
- **Calibration Span** — This field is determined by the instrument. Enter the configured calibration span value for the parameter to determine the parameter's calibration error (at the data logger).

- **Instrument Detection Limit (DL)** — Minimum concentration of an analyte that can be measured by an instrument. The DL is an estimate of concentrations at where you can be fairly certain that the compound is present. Concentrations below this limit may not be detected. Used for air toxics measurements only (can be blank if not needed).
- **Limit of Quantization (LOQ)** — A minimum criterion or region for quantization that should be clearly above the detection limit. The lowest concentration of an analyte in a sample that can be determined (quantitated) with acceptable precision and accuracy under the stated operational conditions of the method. Traditionally, this is approximated as 10 times the signal-to-noise (S/N) ratio.
- **Minimum Detectable Limit (MDL)** — EPA defines the MDL as the minimum concentration of a substance that can be measured and reported with a 99% chance that the analyte concentration is greater than zero.
- **Practical Quantization Limit (PQL)** — The lowest concentration of an analyte that can be reliably measured within specified limits of precision and accuracy during routine laboratory operating conditions.
- **Parameter Report Order** — Parameters in reports are printed in the same order that they are shown under each site. Select Parameter Report Order to change the order parameters appear in reports. Report Order only applies to Daily Summary and Monthly Reports.
- **Totalize in Reports** — If this option is selected, Monthly Reports will show a total of data rather than an average. Totalize in Reports is most commonly used for rainfall.
- **Minimum in Reports** — If this option is selected, Monthly Reports will show a minimum of data rather than a Maximum. Minimum in Reports is most commonly used for rainfall.
- **Additional Information** — You can add notes at the bottom of the Parameter Editor by clicking on the asterisk at the bottom of the screen. Enter a **Name**, for example “Data Last Certified,” and a **Value**, for example “9/1/2008.” To add another row when you have completed your entry, press the **Tab** key on your computer keyboard. A blank row will be displayed.

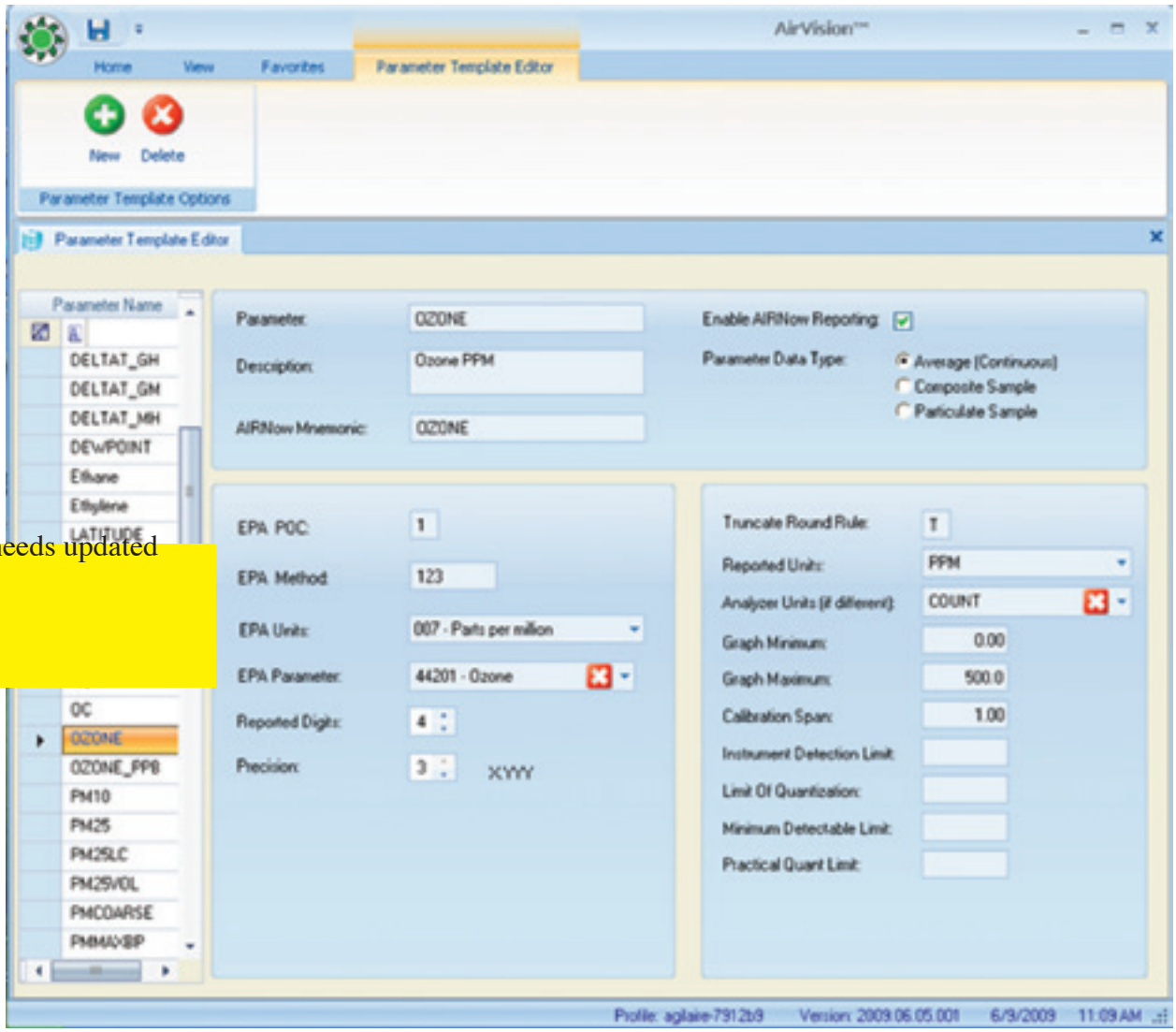
Configuring Parameter Templates

Basic **Parameter Templates** are provided by AirVision (**Configuration Editors** > **Site/Parameter**), such as ozone, PM10, PM25, NO2. You shouldn't have to make changes to the standard Parameter Templates unless the defaults become outdated by changing EPA regulations, but if you have unique setups you can configure new templates in **Configuration Editors** > **Parameter Template Editor**. The Parameter Template Editor defines basics like units, EPA reporting codes, and graph limits, and allows you to configure details for an EPA parameter type.

In AirVision a parameter can come from any kind of data source--it is not correlated with data logger channels. Parameter templates allow you to avoid repeating configurations for the same parameter at multiple sites, for example, file import templates, report setups, ADVP rules. The Parameter Template Editor allows you to enter or modify a list of parameter types that each parameter can be referenced to, so AirVision can correlate parameters with different names (e.g., O3 , OZ, OZONE). Linking parameters to parameter types makes reporting easier and eliminates the necessity to link individual site/parameter selections together (e.g., for AIRNow reporting).

All fields in the Parameter Template Editor were explained in the previous section "Adding and Editing Parameters."

- **Note**: A Parameter Template is required for any parameter imported with the File Import Tool module. File Import is the the most common reason for a user to add to the Parameter Template table.



screenshot needs updated

Configuring Parameter Templates

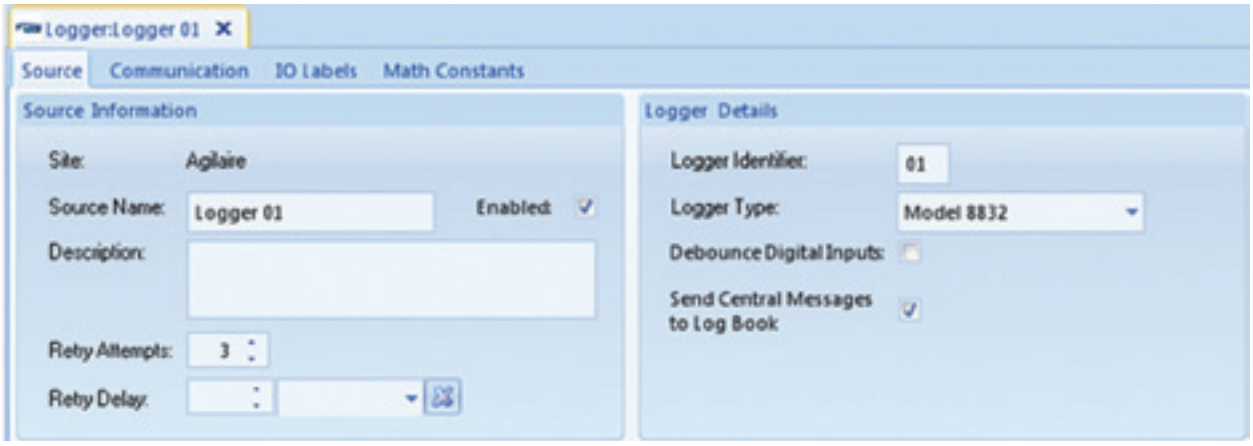
Adding Loggers to Sites in Data Source Details

The next step, after configuring sites and parameters, is to add **Loggers** to sites.

▶ **Note**: Data loggers must be added to sites **BEFORE** channels are configured. Channels are added to loggers after the loggers are set up.

Still in the **Configuration Editor**,

- select **Data Source Details**,
- select a **Site**,
- then click the **Add** button and
- select **Logger**.
- enter a **Source Name**, e.g., 01Logger,
- enter the **Logger ID**, e.g., 01,
- select a **Logger Type** from the drop down list, e.g., 8832,
- click **Enabled**.
- optionally, you can enter a **Description** and select **Debounce Digital Inputs**
- check **Send Central Messages to LogBook** to automatically put polled **Central Messages** into the Logbook as Logbook entries **(Reports>Logger Reports>Central Messages**
- click the **Save** button.



Logger Configuration from Data Source Details in Configuration Editors

Adding Channels to Data Loggers

Still in the **Configuration Editor**, **Data Source Details**,

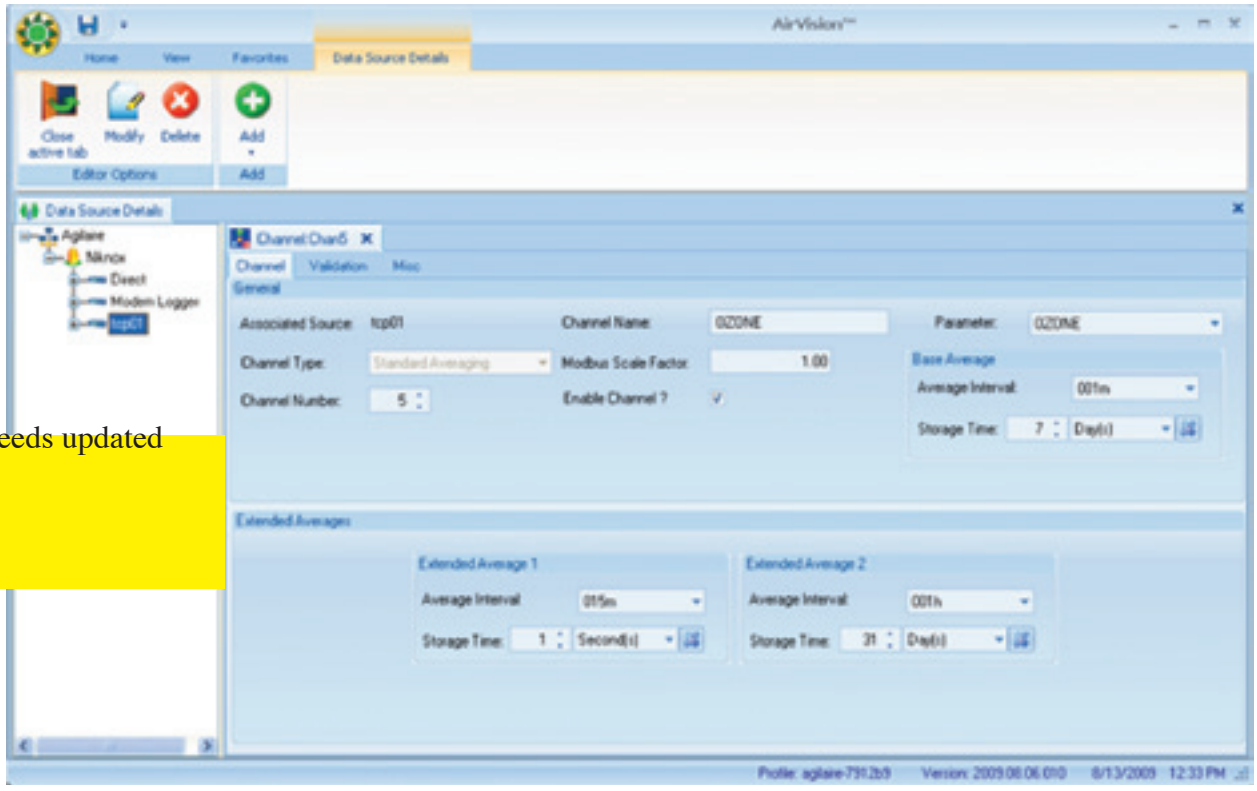
- select a **Logger** that has already been added to a **Site** (see "Adding Loggers to Sites")
- click the **Add** button.
- select **Add Channels** and
- select a **Channel Type**, e.g., Standard Averaging, GSI, VWS, etc.
- select a **Channel Number** (a channel number will automatically be added in order)
- select a **Parameter.** When you select a parameter, the Channel Name will automatically be changed to match the Parameter name.

For the remainder of the prompts on the form, consult the ESC Model 8816/8832 User Manual.

▶ **Note:** When you first open the Channel editor the **Channel Name** will be displayed as Chan1, Chan2, etc. When you select a Parameter, the Channel Name will automatically be changed to match the Parameter name; however, you can edit the Channel Name if you choose. After the channel is downloaded to the data logger, the Channel Name will be displayed as the **Instrument Name** in the logger.

- select an **Average Interval** and **Storage** for the **Base Average**, **Extended Average 1**, and **Extended Average 2**.
- Click the **Save** button

Follow the same procedure to add calibrations, average alarms, and digital event triggers, as explained later.

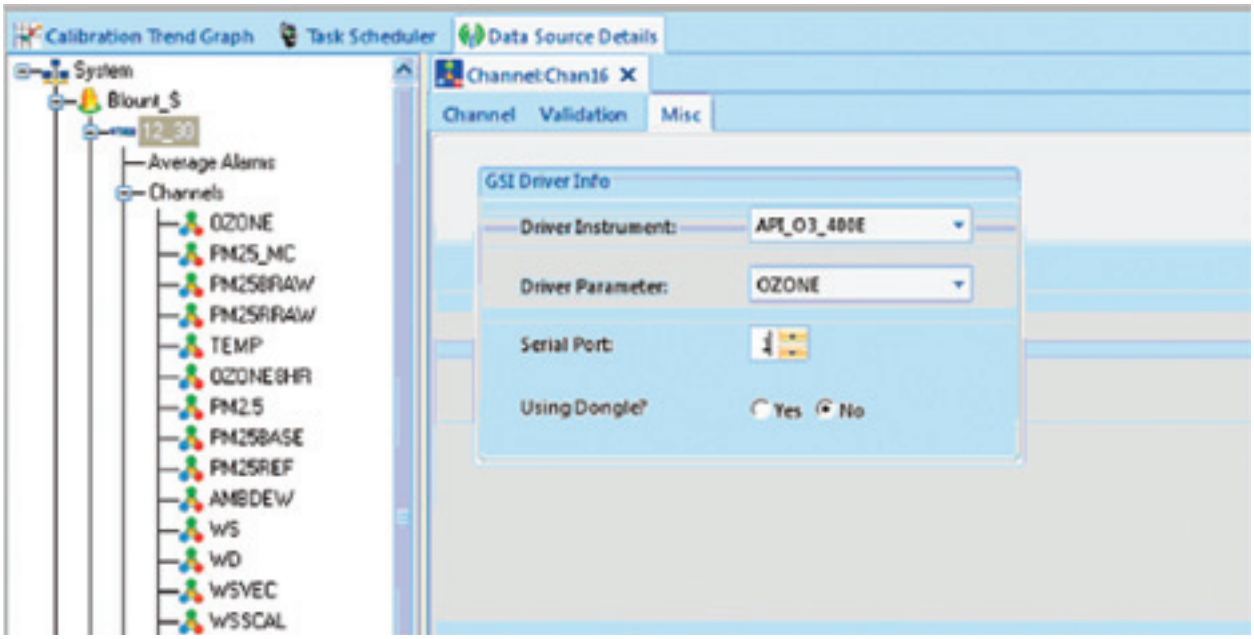


screenshot needs updated

Adding channels to loggers in the Data Source Configuration from Configuration Editors

Two channel types are handled differently in AirVision than in previous systems; both improve on digital data acquisition integration.

- The first channel type, the GSI (Generic Serial Interface) channel, is used for RS-232 based instruments. AirVision includes a library of GSI drivers for a wide variety of instruments. Choose the instrument, the parameter, and designate which serial port is connected. Using a dongle can be designated if the instrument connection requires a hardware dongle (e.g., C-Series Analyzers in a daisy-chain configuration, or Ecotech analyzers).



GSI channel configuration

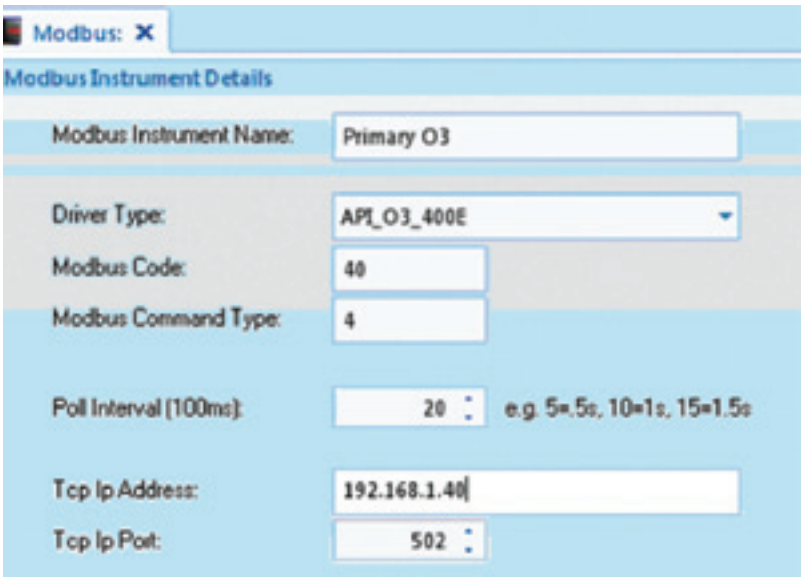
- The second channel type (and a better approach for digital data acquisition) is the Modbus channel. Designate an Instrument that has been previously configured in the Data Source Details editor, and select a parameter.

Modbus channel configuration

▶ **Note:** For AirVision Version 1.0 only, the server.config file is built externally and sent by FTP to the data logger. For AirVision 1.0.1 and after, the configuration and download is handled completely within AirVision.

Like the GSI channel, AirVision simplifies the configuration process by automatically creating and downloading the data logger's server configuration file in the background. Since Modbus instruments have additional networking information that needs to be known, you must create an instance of the Modbus instrument in the Data Source Details editor before creating the Modbus channels for that instrument (this prevents the need to repeat entry of the networking information for each channel).

To create the instrument, go to the Data Source Details editor, select the appropriate data logger object in the tree, and select **Add** > **Logger Modbus Instrument** on the ribbon.

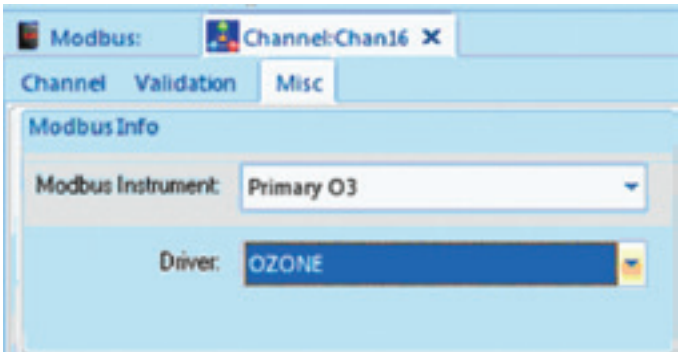


Modbus Instrument Details in Data Source Details

You must then enter the following fields:

- Instrument Name--a user-defined label for the instrument
- Driver Type--select from picklist of known analyzers
- Modbus Code--also known as the Modbus Device ID, this is set in the analyzer, and is some value from 1-255
- Modbus Command Type--defines which Modbus command is used to read data from the analyzer (3 for TECO, 4 for API, consult instrument documentation for other brands)
- Poll Interval- how often data should be requested from the instrument, in tenth of a second increments
- TCP Address--IP address of the instrument, as viewed from the logger's perspective
- TCP Port--Port used by the instrument for Modbus requests, usually "502".
- Timeout (MS)--Designates the time the logger will wait on an instrument for a Modbus response. Typical values are 250-750 MS

Once the instrument is configured and saved, you can then use the **Add Channel** > **Modbus** in the **Data Source Details** editor. Under the **Misc** tab, select the defined analyzer and the parameter in the instrument from a picklist. If you need a parameter does not exist in the picklist, contact Agilaire Support (support@agilairecorp.com) and we will add it to your system.



Misc tab in Add Modbus

Parameter Tag Editor

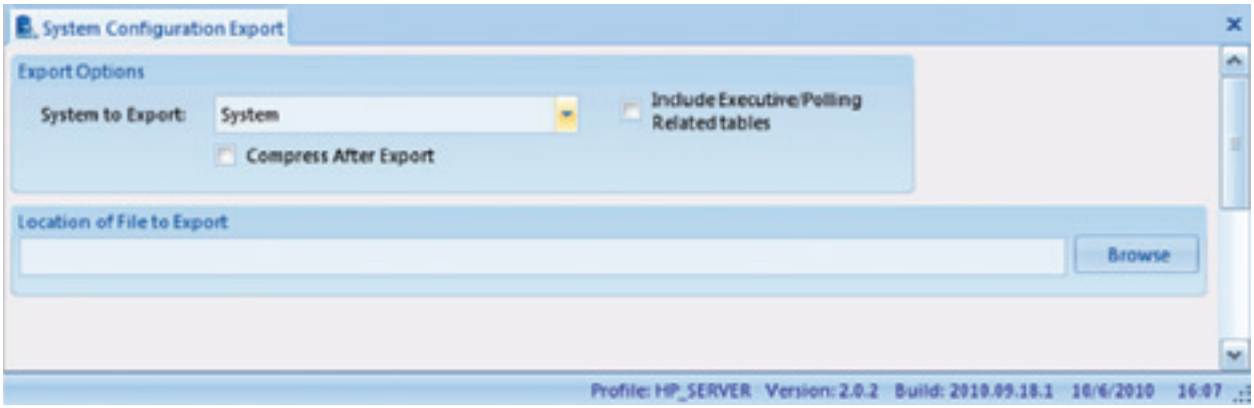
The Parameter Tag Creation Tool (List Editors>Parameter Tag Editor) is used only to create entries in the database for parameter / average interval combinations if you want to use the Average Data Editor as the sole means of data input. It is not necessary to use this tool for parameters that are polled, imported using the File Import Tool, or manually entered through the Sample Data Editor, as AirVision creates the database tag entries automatically.

System Configuration Export

The **Configuration Export** tool (**Utilities>System Configuration Export**) allows any table in the AirVision database to be exported in XML format and re-imported. It is useful for copying system configuration settings to send to Agilaire support staff for troubleshooting.

In the **Export Options** section, select the **System to Export** from the drop down list. Check **Compress After Export** if you want the file to be compressed into a zipped file. Check the box **Executive/Polling Related Tables** if you want these tables to be included in the exported file.

Select the **Browse** button in the **Location of File to Export** field and browse to the location of the XML file to be exported. The path to the file and the file name will be displayed in the export field. Click the **Process Export** button on the Ribbon. The configuration will be exported to an XML file. Keep in mind that the export only gets basic essential settings and does not export the complete configuration of the system and should not be used as a primary backup file.



System Configuration Export tool (Utilities>System Configuration Export)

'System Configuration Export' portion needs updated, it's now under Table Import/Export->Database export and the screenshot will also need updated

Adding Communication Routes

The next step is to identify to the AirVision Server how to communicate with each logger by setting up Communication Routes. After you configure the **Source** in **Data Source Details** from **Configuration Editors**, click **Server Configuration** to configure a Communication Route for each logger. Highlight the **Server** and click the **Add TCP** button to establish the communication route described below:

TCP/IP Routes

▶ **Note:** TCP/IP connections are easier and faster than modems.

For sites with a TCP/IP connection,

- Click the **Add TCP Route** button
- Enter a **Route Name**, e.g., Agilaire,
- Enter a **Network Address**, e.g., 172.16.1.240

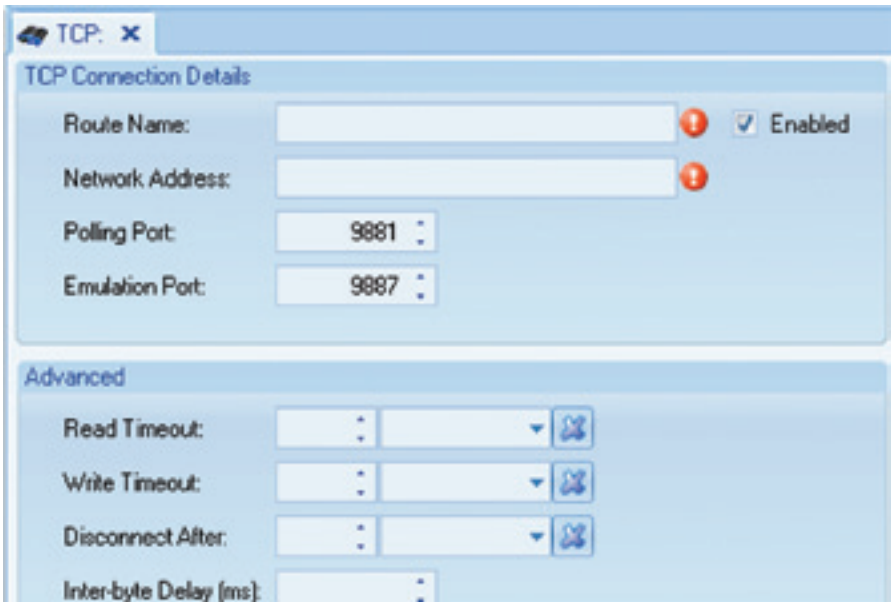
The defaults are set for 8832 defaults, but can be changed based on your network/route definitions:

- **Polling Port** at 9881
- **Emulation Port** at 9887.

▶ **Note: Advanced Settings** should **ONLY** be modified when recommended by Agilaire support (865-927-9440 press 2 for support or email support@agilairecorp.com). AirVision is designed with defaults that are best for most applications.

- **Read Timeout**- This setting overrides the default timeout period for a TCP data read.
- **Write Timeout**- This setting overrides the default timeout period for a TCP data transmission.
- **Disconnect After**- This setting controls the closing of a TCP connection after a period of inactivity. Normally, AirVision assumes the TCP connection should remain open for optimum polling efficiency; however, some wireless IP modems will close the connection from their end, and TCP does not allow the server to automatically detect this drop. In these cases, AirVision can be set to forcibly close and re-open the connection.
- **Inter-byte Delay (ms)**- This feature can be used to slow the inter character transmission speed.

Click the **Save** button.



Adding a TCP Route in Configuration Editors > Data Source Details or Configuration>Server Configuration

Adding Serial Routes for Direct Communication

For sites with a serial route for a direct connection,

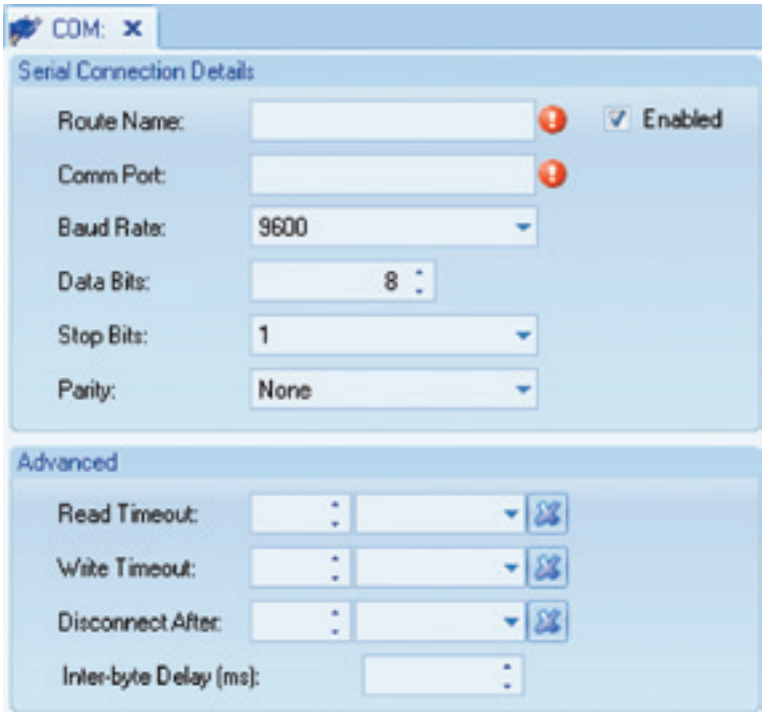
- Highlight the **Server** and click the **Add Serial** button in **Server Configuration**
- Enter a **Route Name**, e.g., Direct,
- Enter a **Comm Port**, e.g., COM4
- Enter a **Baud Rate** or accept the default 9600
- **Data Bits** should be 8
- **Stop Bits** should be 1
- **Parity** should be None.

▶ **Note: Advanced Settings** should **ONLY** be modified when recommended by Agilaire support (865-927-9440 press 2 for support or email support@agilairecorp.com). AirVision is designed with defaults that are best for most applications.

- **Read Timeout** overrides the default timeout period for data read..
- **Write Timeout** overrides the default timeout period for a data transmission.
- **Disconnect After** controls the closing of a connection after a period of inactivity. Normally, AirVision assumes the direct connection should remain open for optimum polling efficiency; however, AirVision can be set to forcibly close and re-open the connection.
- **Inter-byte Delay (ms)** can be used to slow the inter character transmission speed.

Click the **Save** button.

▶ **Note:** Communication Routes can also be added in **Configuration Editors** > **PC Configuration** by highlighting the **Server** icon and clicking one of the **Add** buttons.



Adding a Serial (Direct) Route in Configuration Editors > Data Source Details or Configuration>Server Configuration

Adding Remote Modems

For sites with a modem route, for the remote modem:

- Open **Server Communication** and click the **Add Modem Route** button in and select **MODEM**
- Enter a **Route Name**, e.g., Modem1
- Enter a **Phone number**, e.g.,865-927-9440
- Select a **Modem** from the drop-down list or leave the default of **Use any available modem**
- **Preferred Modem Baud Rate**. If set, AirVision will first seek a modem whose max baud rate matches this preferred speed. If none is available, it will use any of the other modems in the pool.
- Enter a number of **Redial attempts** (default is 1)
- Enter **Time between redial attempts** (default is 1 minute).
- Click the **Save** button.

Adding a Remote Modem Route in Configuration Editors > Data Source Details

▶ **Note: Advanced Settings** should **ONLY** be modified when recommended by Agilaire support (865-927-9440 press 2 for support or email support@agilairecorp.com). AirVision is designed with defaults that are best for most applications.

- **Over ride Serial Baud Rate**- If set, AirVision will force the COM port connection to a specific speed when communicating with the modem.
- **Over ride Serial Read Timeout**- Overrides the default timeout period for a serial transmission from the server to the remote.
- **Over ride Serial Write Timeout**- Overrides the default timeout period for a serial response from the remote after a command has been sent.
- **Connection Timeout**- Sets the time before a dialing attempt is aborted if the modem does not provide a valid response code indicating a connection.
- **Hangup Idle Time**- Sets the time before an idle modem connection is considered ready for disconnection Defaults to 5 seconds (this would be five seconds in addition to the Serial Read Timeout), but can be extended if responses from loggers are slow.

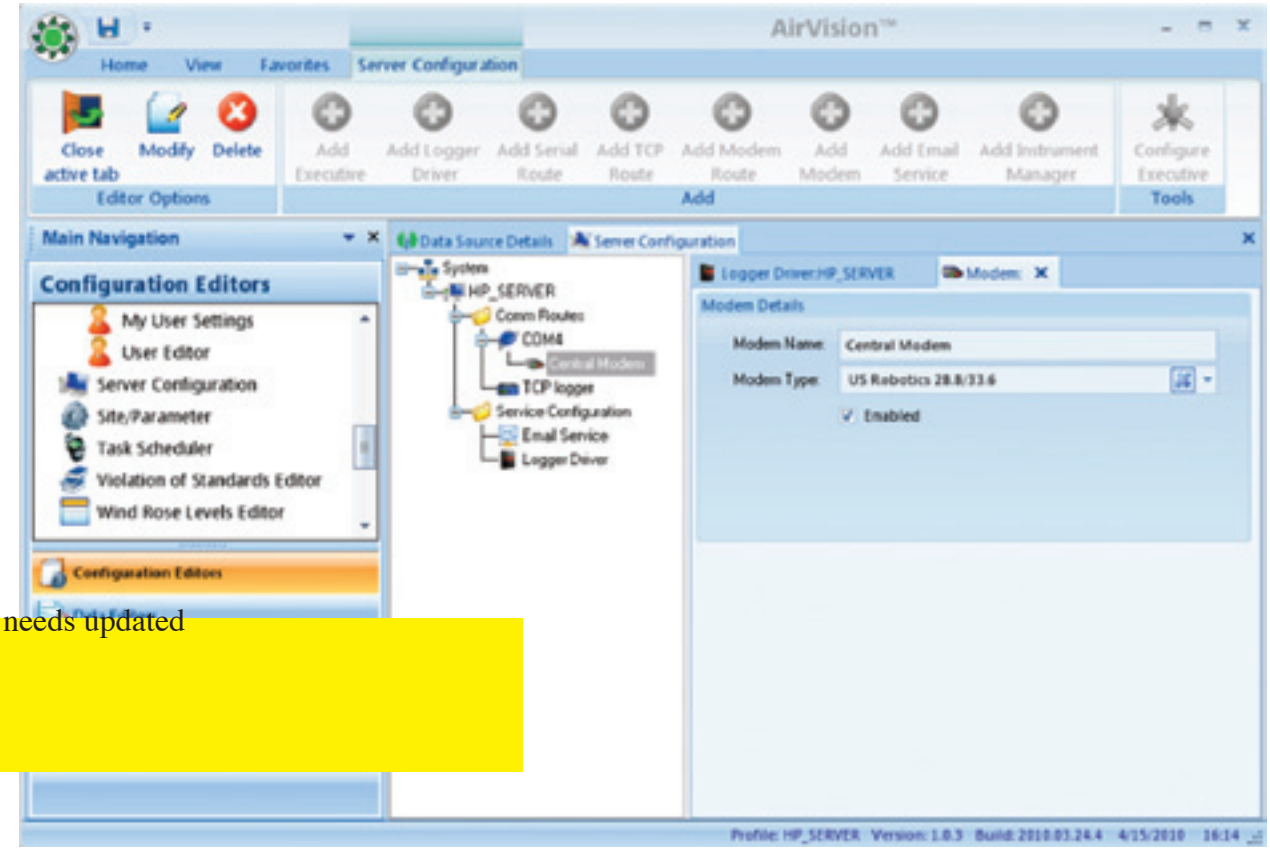
Adding a Modem Route for Central Modem

For communication via modem, add a **Modem Route** to dial out from the **Central modem** attached to your Executive PC. From **Configuration Editors** > **Server Configuration**:

- highlight the **COM1** icon (or COM2, COM3, etc.)
- click the **Add Modem** button.
- enter a **Modem Name** (such as Central modem)
- select a **Modem Type** from the drop down list, e.g., U.S. Robotics 28.8-33.6.

Click the **Save** button. The modem will be added below the COM icon in the menu tree.

▶ **Note:** Communication Routes can also be added in **Configuration Editors** > **Server Configuration** by highlighting the **Server** icon and clicking one of the **Add** buttons.



screenshot needs updated

Central Modem Configuration from Configuration Editors > Data Source Details > Communication tab > Create New Route button.

Associating an Existing Route to a Logger

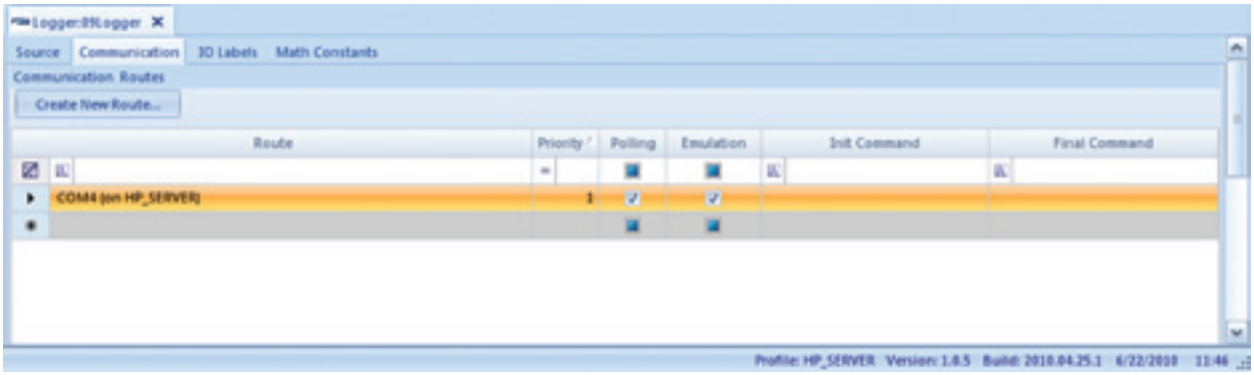
Each **logger** must be associated with a **Logger Driver**. Open **Configuration Editors** > **Data Source Details** > **Logger** and select the **Communication tab**:

- Highlight the **Route** row
- Assign a **Priority** number
- Select **Polling** and/or **Emulation** if applicable (Emulation is for linking to the logger.)
- Optionally, enter an **Initialization Command and** and a **Final Command**
- Click the **Save** button.
- Click the **Save** button.

To add a new Route, click the **Create New Route** button.

⇨ **Important::** Some configuration changes require you to restart the the AirVision Server. If a **System Restart** is necessary, you will be prompted by AirVision when you click **Save**. If you click **Yes** at the prompt, AirVision will restart the system automatically. If a required server restart is not done, you will not be able to link to logger. (Two server restarts may be necessary to synchronize the network for IP-based connections.)

▶ **Note:** If you need to restart the system manually, open the **Utilities** menu and select **Server Restart**. Select an **Executive** in the **Server Restart** screen, then click the **Restart Executive Service** icon in the upper left corner.

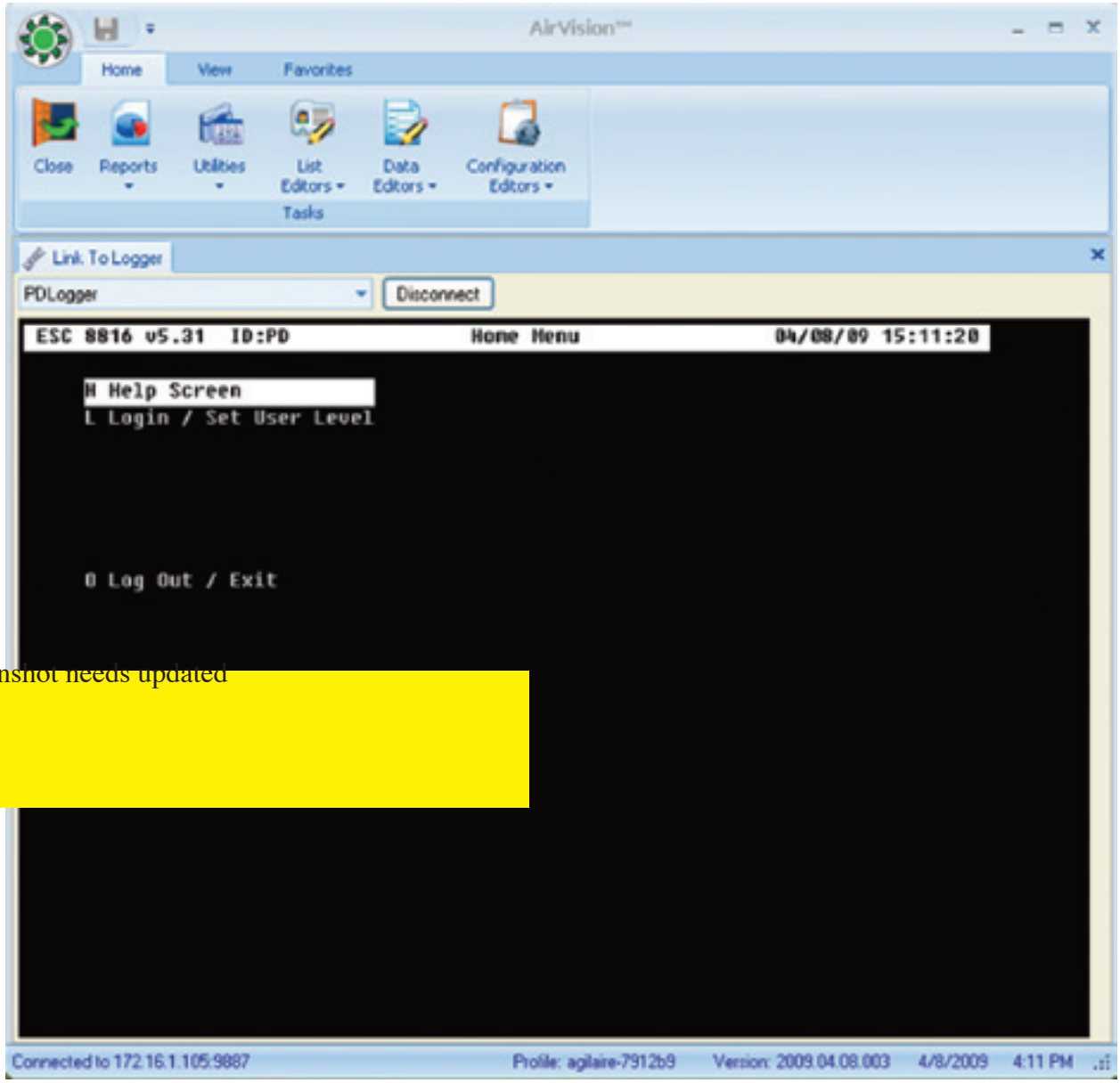


Associating Data Logger with TCP/IP connection to Driver in Configuration Editors > Data Source Details > Communication tab

Testing Your Connection

To test your connection, select **Link to Logger** from the **Utilities** menu. Select a logger from the drop-down list and click **Connect**. Linking to the logger means that you connection is good but does not ensure that you will be able to download or poll.

- **Important:** If you have not restarted the AirVision service after making configuration changes, you must restart the AirVision service before you can link to logger. Open **Utilities** > **Restart**. Be sure the Executive is selected and click **Restart Executive Service** in the upper left corner. Sometimes two server restarts are required to synchronize the network for IP-based connections.



Testing your connection from Utilities > Link to Logger

Logger Download

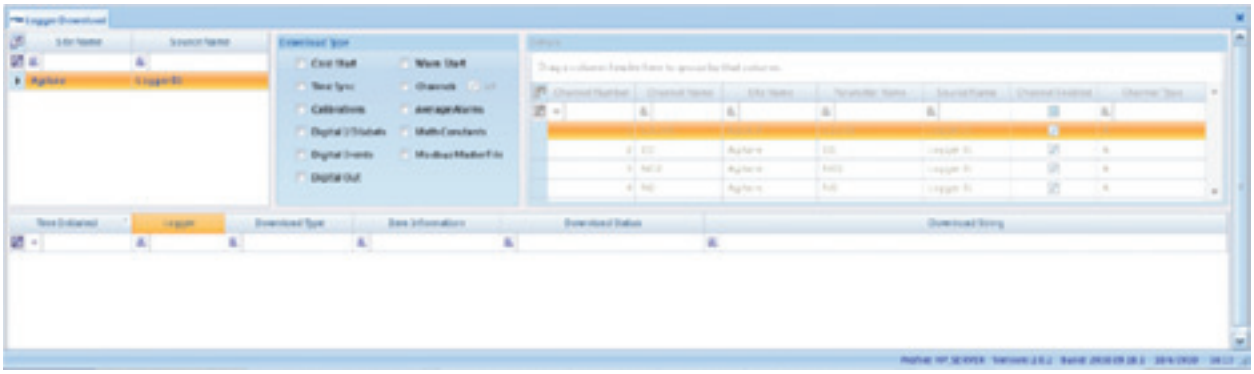
To download channel configurations:

- Open **Utilities** > **Logger Download**. Configuring channels was explained in the section "Adding Channels to Data Loggers."
- Select the **Site**/**Source Name**
- Select the **Download Type(s)** from the following check list:
  Cold Start
  Time Sync
  Calibrations
  Digital I/O Labels
  Digital Events
  Digital Out
  Warm Start
  Channels. If you select Channels, the option to select All will be activated.
  Average Alarms
  Math Constants
  Modbus Master File
- In the Details section, select rows from a table with the following columns: Channel Number, Channel Name, Site Name, Parameter Name, Source Name, Channel Enabled, and Channel Type.
- click **Download**.

The **Log Viewer** will display details of the download in the bottom section of the screen.

▶ **Note:** The **Log Viewer** can also be accessed directly from the **Utilities** menu.

▶ **Note:** Multiple loggers can be downloaded at the same time without a cold start.



Logger Download in Utilities > Logger Download

Special Case- External Channels

The Model 8872 supports a new channel type "E" for External Channels. These allow the user to create a 'fake' channel associated with parameter from a directly polled instrument (e.g., BAM, E-Sampler, etc), where the logger is not doing real-time acquisition. It exists ONLY to create a channel number for use with logger polling. The External type channel requires no other special configuration, and is ignored by the Site Node Logger process.

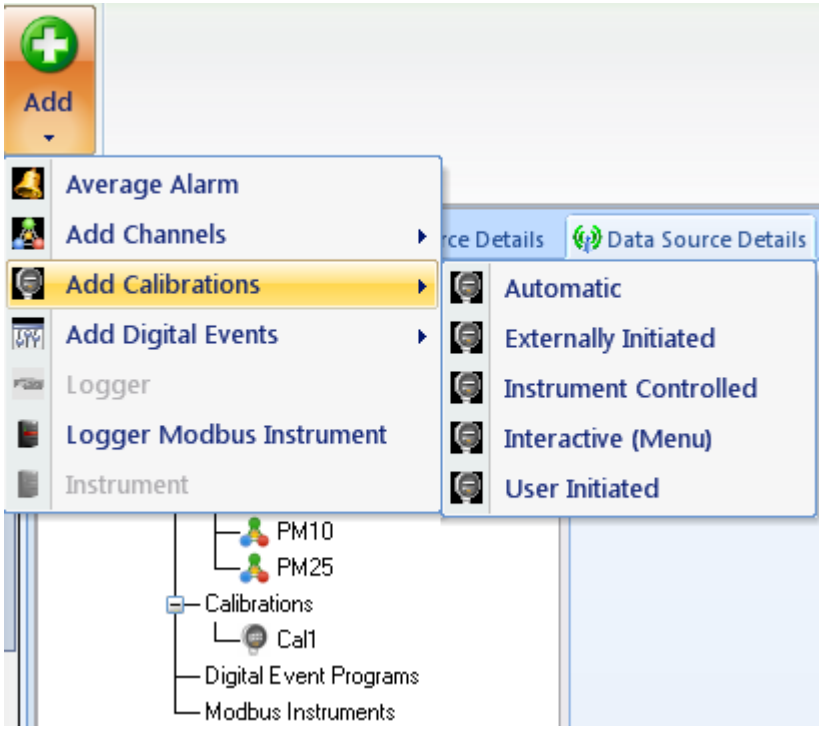
Setting Up Calibrations

To configure calibrations:

- open **Configuration Editors** > **Data Source Details**
- highlight the **Logger** in the tree menu
- click the small arrow under the **Add** button
- select **Calibrations** from the drop-down list
- select one of the following calibration types:
  Automatic
  Externally Initiated
  Instrument Controlled
  Interactive (Menu)
  User Initiated

For details about the remaining prompts, Consult the ESC Model 8816/8832 Data Logger Manual.

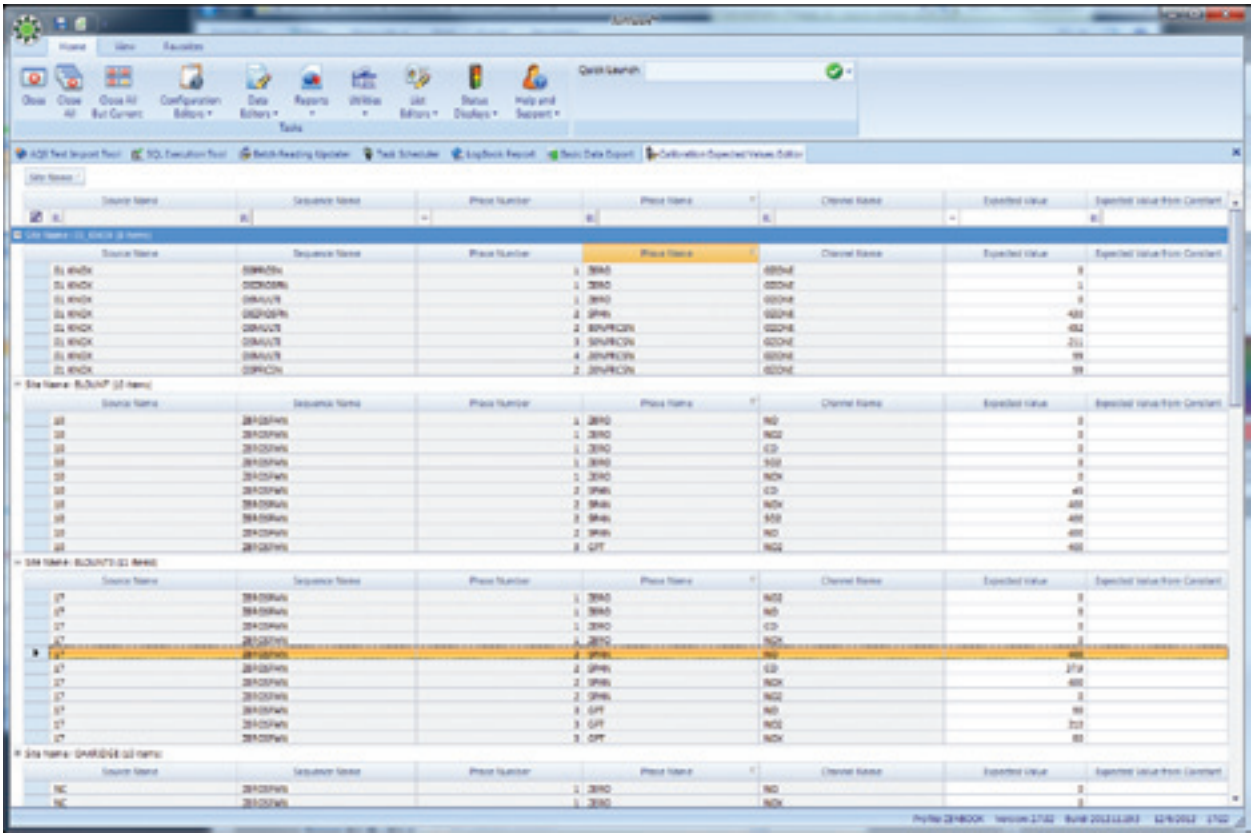
▶ **Note:** Configuration information must be downloaded to the data logger before a new sequence can be initiated.



Adding calibrations in Configuration Editors > Data Source Details

Calibration Expected Values Editor

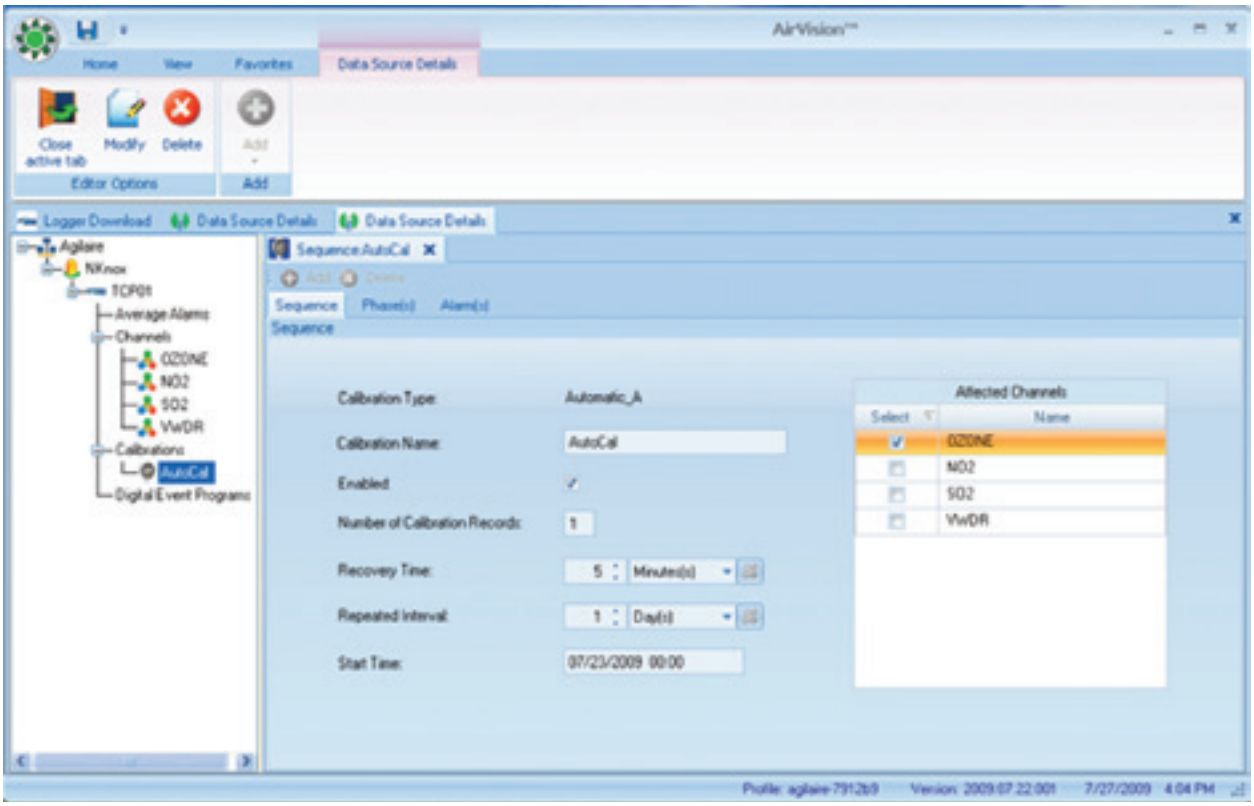
This mimics the "Quick Expected Values" editor in the Model 8832 data logger that allows the user to quickly update target values for the calibration without sorting through the Calibration configuration editor. The system shows all configured calibrations as expandable/collapsible boxes. Once opened, columns headers can be clicked to sort by phase name, expected value, etc. for easier data entry.



Configuring Automatic Calibrations

If you configure **Automatic** Calibrations, the cal you enable will be automatically initiated by the data logger's internal clock. The Automatic Cal Sequence configuration screen has the following fields:

- **Calibration Type** will be already filled in (Automatic_A).
- **Calibration Name** is required to identify the cal program.
- Check **Enabled** if the calibration is to run.
- **Number of Calibration Records** determines how many cals the data logger will store before overwriting.
- **Recovery Time** specifies the time required to purge cal gas after phases.
- **Repeated Interval** determines how often cal sequence will repeat.
- **Start Time** determines what time cal sequence will start.
- **Affected Channels** determines which channels will be taken off-line during cal. Select from a list of previously configured parameters.

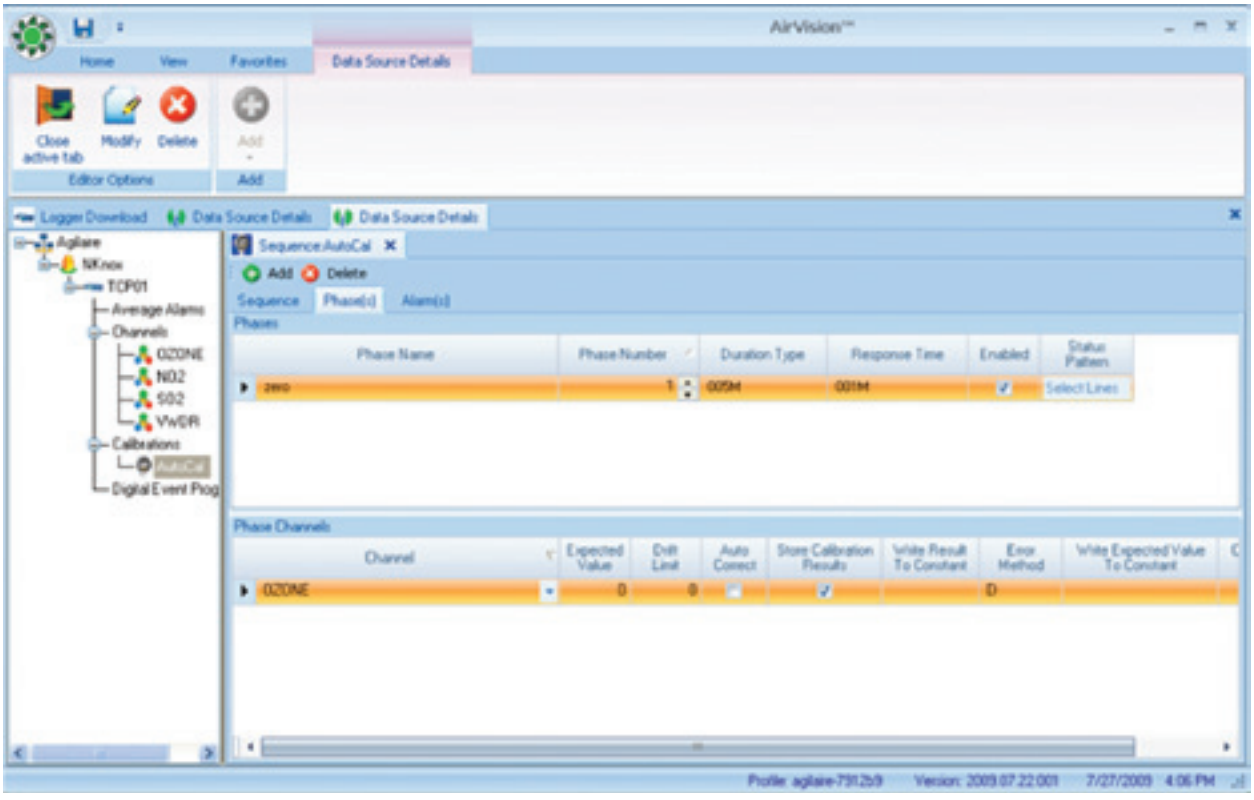


Automatic Calibration configuration in Configuration Editors > Data Source Details

Configuring Phases

To set up Phases:

- Click the **Phase(s)** tab behind the Sequence Cal tab.
- To enter a phase name, click the click the green **Add** button above the tabs and select **Phase** from the drop-down list. .
- Enter a **Phase Name**, **Phase Number**, **Duration Type**, **Recovery Time**, and click to **Enable**.
- To configure a Status Pattern, click the row in **Status Pattern** column and a check list of **Output Control Patterns** will come up.
- After the Phase table is configured, click the green **Add** button again and select **Phase Channels**.
- Select a **Channel** from a drop-down list, and optionally enter an **Expected Value**, **Drift Limit**, **Auto Correct** (click to enable), **Store Cal Results** (click to enable), **Write Result to Constant**, **Error Method**, **Write Expected Value to Constant**, and **Out of Control Limit**.



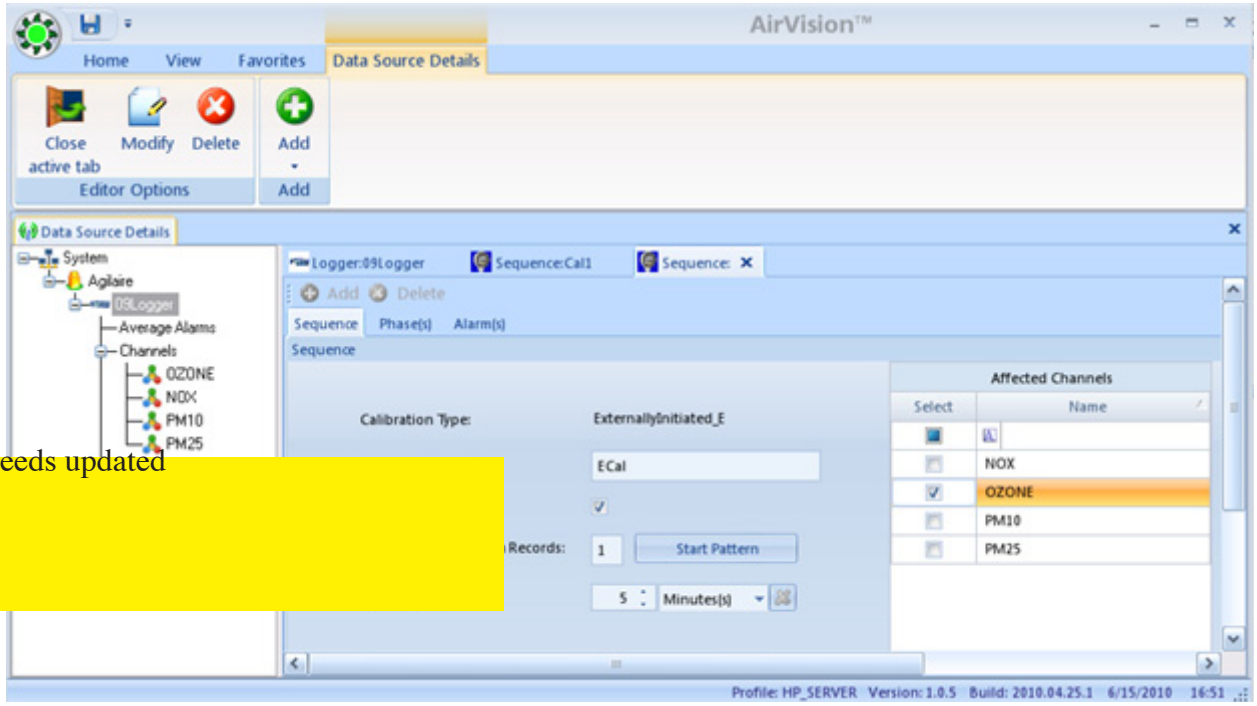
Configuring calibration phases in Configuration Editors > Data Source Details

Optionally, the user can define the Cal Level for each calibration phase using a picklist (ZERO, PREC, SPAN, 20%, etc). These levels are used by the Calibration Adjustment Tool and the AQS Precision Reporting for Gases functions, but designation of the levels are not required.

Externally Initiated Calibration

Externally initiated calibration is identical to an automatic calibration except for the way it is initiated. The sequence is started when a specified pattern of input control lines is met. To configure the **Start Pattern** (Line Status Pattern), click the **Start Pattern button**.

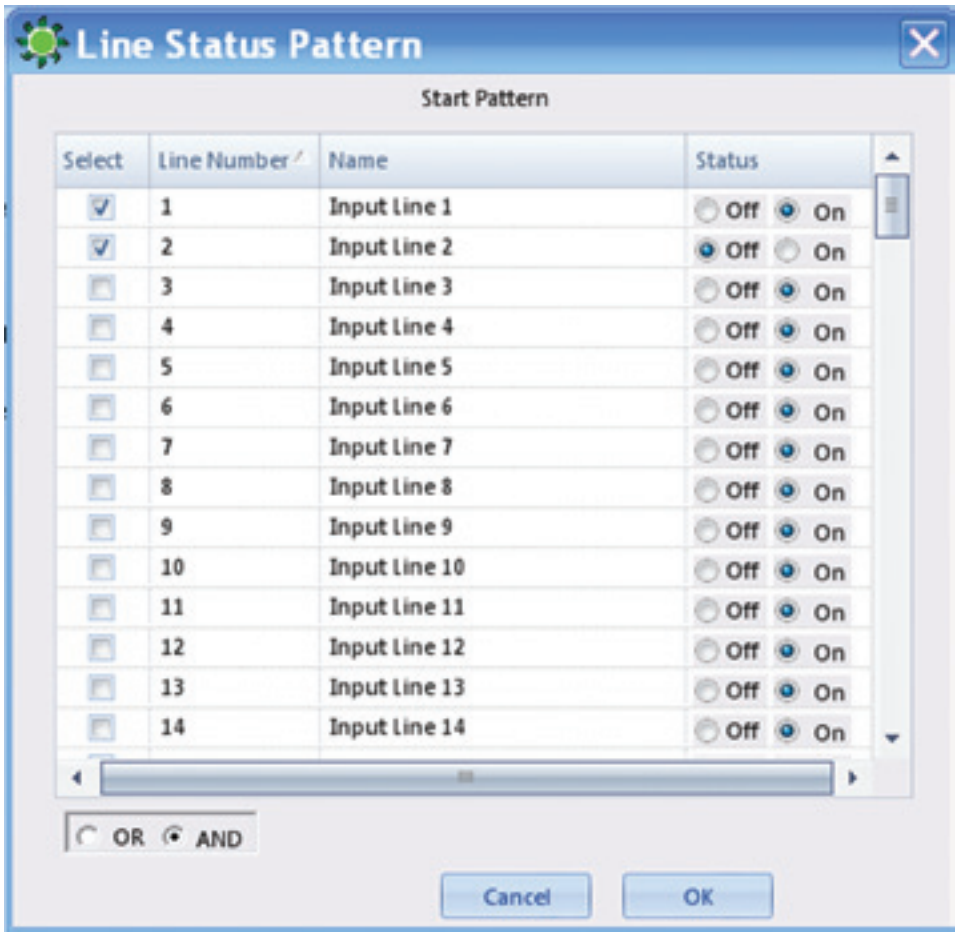
Individual phases are then initiated sequentially. As with an automatic calibration, the duration of each phase in the sequence can be specified.



screenshot needs updated

Configuring Externally Initiated Calibrations in Configuration Editors > Data Source Details

When you click the **Start Pattern** button in the **Externally Initiation Calibration** screen, you **will see a Line Status Pattern** screen. Check the **Select** box to select an **Input Line** and select a **Status** of **On** or **Off**.

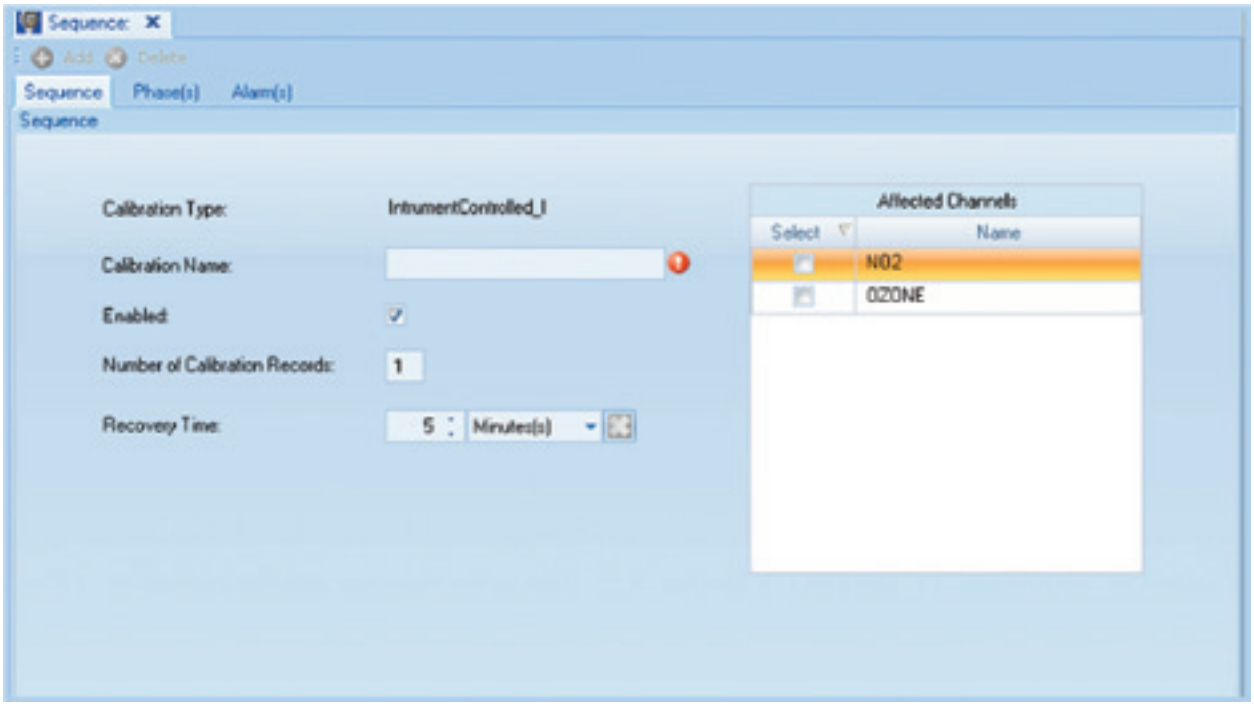

Line Status Pattern
Start Pattern
Select
Line Number
Name
Status
1 Input Line 1 Off On
2 Input Line 2 Off On
3 Input Line 3 Off On
4 Input Line 4 Off On
5 Input Line 5 Off On
6 Input Line 6 Off On
7 Input Line 7 Off On
8 Input Line 8 Off On
9 Input Line 9 Off On
10 Input Line 10 Off On
11 Input Line 11 Off On
12 Input Line 12 Off On
13 Input Line 13 Off On
14 Input Line 14 Off On
OR AND
Cancel
OK

Configuring Start Pattern (Line Status Pattern) in Externally Initiated Calibrations in Configuration Editors > Data Source Details

Configuring Instrument Controlled Calibrations

If you configure **Instrument Controlled** Calibrations, enabled calibrations will be initiated by the data logger when it detects a specified digital input pattern. Each phase will continue until the input line pattern changes. The Instrument Controlled Cal screen has the following fields:

- **Calibration Type** will be already filled in (InstrumentControlled_I).
- **Calibration Name** is required to identify the cal program.
- Check **Enabled** if the calibration is to run.
- **Number of Calibration Records** determines how many cals the data logger will store before overwriting.
- **Recovery Time** specifies the time required to purge cal gas after phases.
- **Affected Channels** determines which channels will be taken off-line during cal. Select from a list of previously configured parameters.

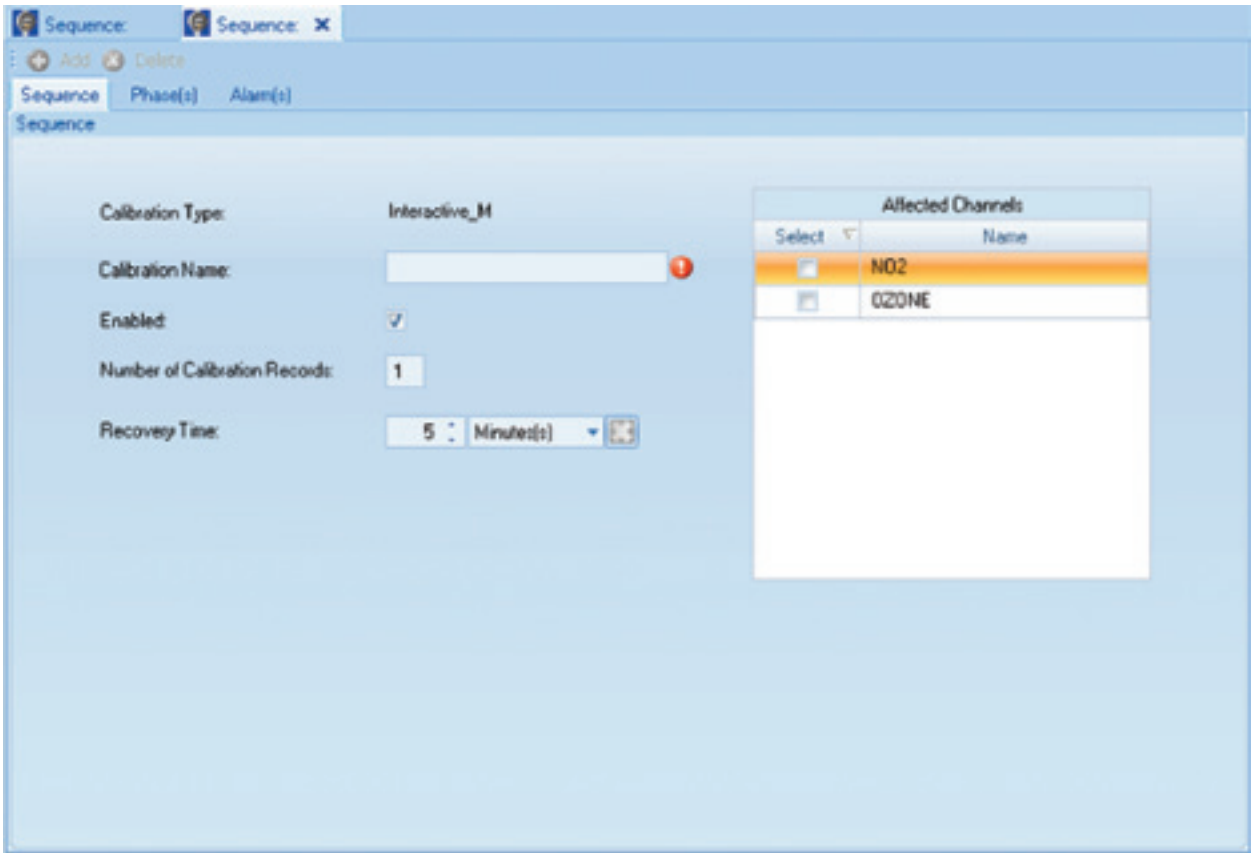


Configuring Instrument Controlled Calibrations from Configuration Editors > Data Source Details

Configuring Interactive (Menu) Calibrations

If you configure **Interactive** Calibrations, enabled cals will be controlled by a user via a menu interface. Interactive cals are often used for highly manual procedures, such as testing opacity instruments against standard filter. Interactive Cal configuration screen has the following fields:

- **Calibration Type** will be already filled in (Interactive_M)
- **Calibration Name** is required to identify the cal program.
- Check **Enabled** if the calibration is to run.
- **Number of Calibration Records** determines how many cals the data logger will store before overwriting.
- **Recovery Time** specifies the time required to purge cal gas after phases
- **Affected Channels** determines which channels will be taken off-line during cal. Select from a list of previously configured parameters.



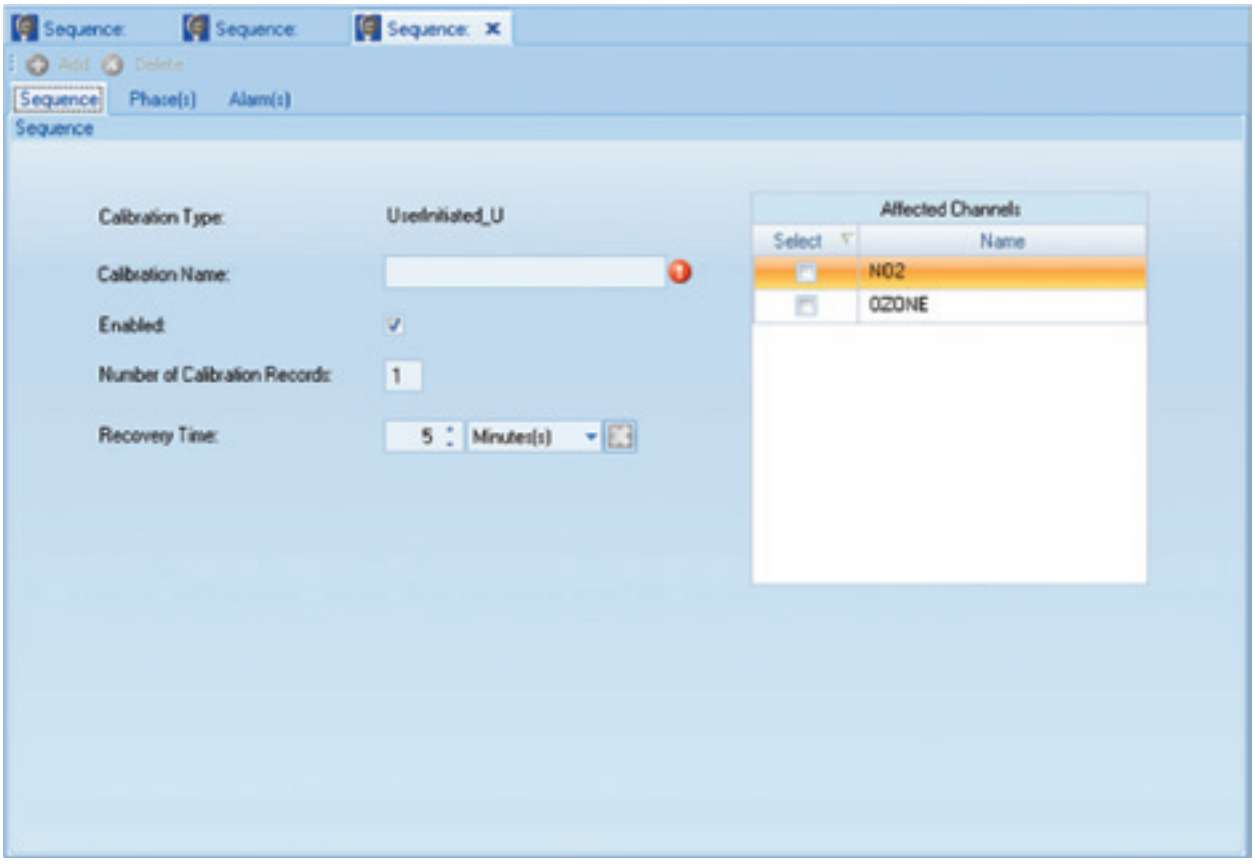
Configuring Interactive (Menu) Calibrations

Configuring User-Initiated Calibrations

Initiated calibrations are started manually by linking to the data logger. When the cal sequence is started, each phase will be initiated in order. The duration of each phase is configured with the same fields as automatic cals.

The User-Initiated Cal configuration screen has the following fields:

- **Calibration Type** will be already filled in (UserInitiated_U).
- **Calibration Name** is required to identify the cal program.
- Check **Enabled** if the calibration is to run.
- **Number of Calibration Records** determines how many cals the data logger will store before overwriting.
- **Recovery Time** specifies the time required to purge cal gas after phases.
- **Affected Channels** determines which channels will be taken off-line during cal. Select from a list of previously configured parameters.



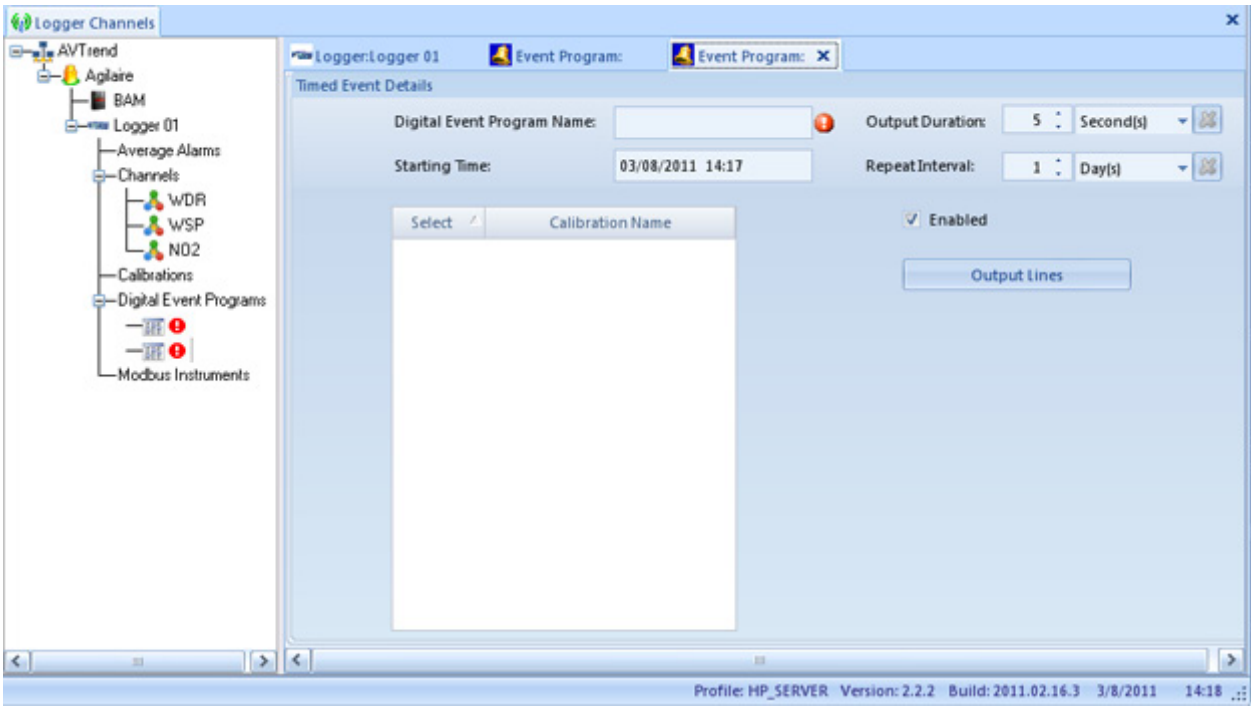
Configuring User-Initiated Calibrations

Configuring Input/Output Lines for Digital Events

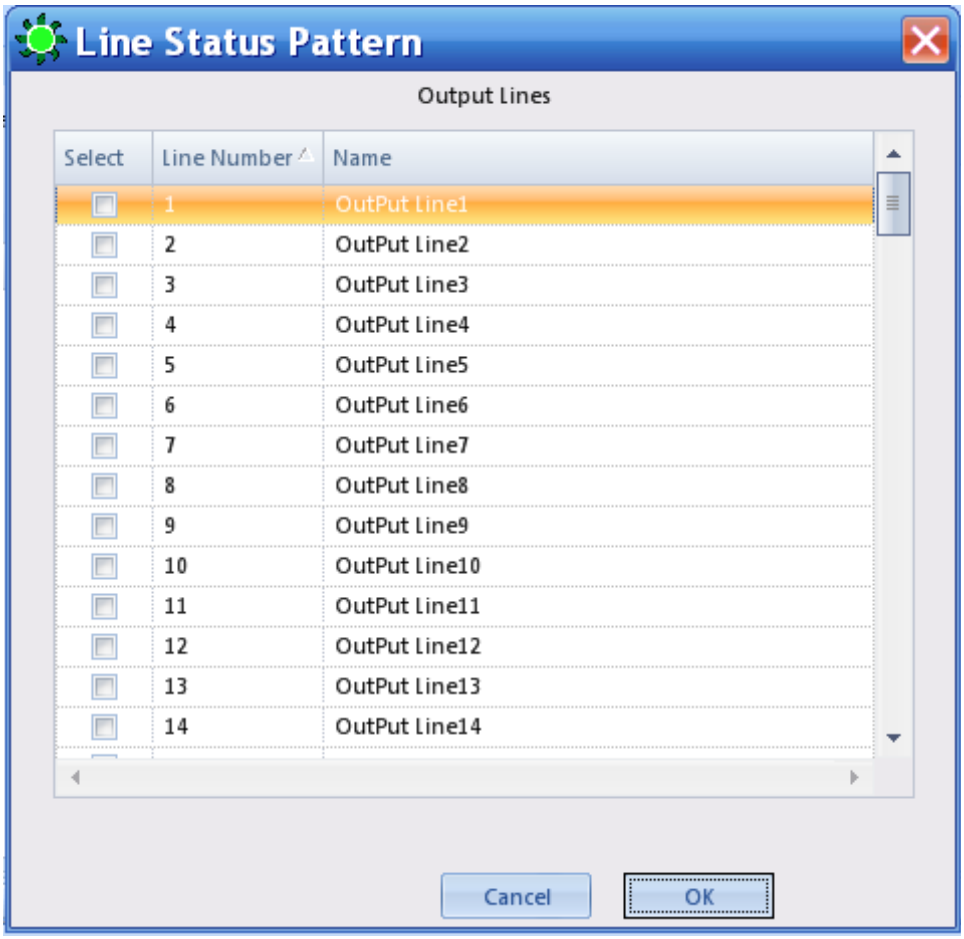
The purpose of digital event programs is to control processes from 8816 or 8832 Data Loggers. **Digitally Timed Events** will turn on specified **Output Lines** for the configured **Starting Time**, **Duration**, and **Repeat Interval**. **Digitally Triggered Events** are initiated by a digital input pattern that will turn on one or more digital output lines. The output lines will remain active for the specified duration; at the end of this time, the output lines will be turned off unless the triggering digital input pattern still matches.

Configuring Digital Timed Events

1. Highlight the **Data Logger** in **Configuration Editors > Logger Channels** tree menu.
2. Click the green **Add** button in the ribbon and select **Add Digital Events > Timed Event**.
3. Enter a **Digital Event Program Name**, a **Starting Time**, **Output Durations**, **Repeat Interval**, and check **Enabled**.
4. If the Digitally Timed Event is for a calibration, select a **Calibration Name** from the drop-down list.
5. Click the **Output Lines** button to bring up the **Line Status Pattern** screen and select a **Line Number**. Click **OK**.



Configuring Digitally Timed Events



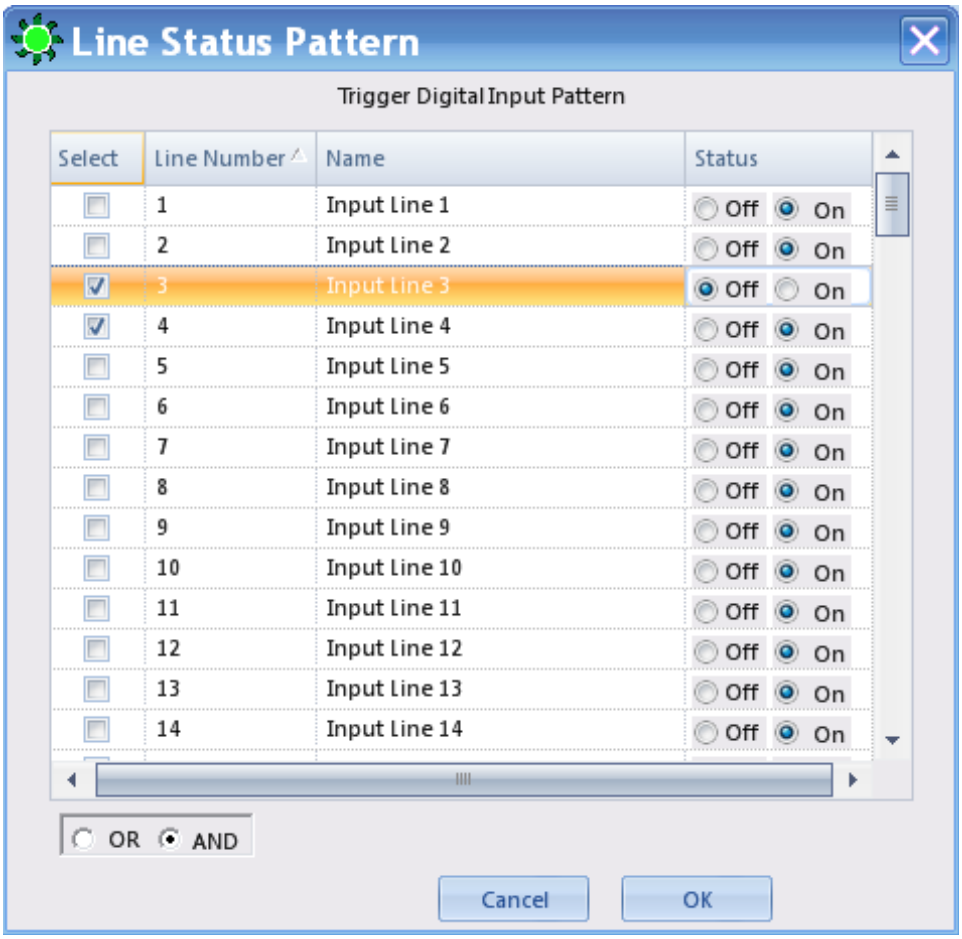
Line Status Pattern for Output Lines

Configuring Digital Triggered Events

1. Highlight the **Data Logger** in **Configuration Editors > Logger Channels** tree menu.
2. Click the green **Add** button in the ribbon and select **Add Digital Events > Triggered Event**.
3. Enter a Triggered **Digital Event Program Name**, an **Output Duration** and check **Enabled**. After the output duration time period, the program will check the digital input pattern to see if it still matches. If not, the output control lines will be switched off. If the pattern still matches, the output relays will remain on, and the duration time will begin again.
4. If the Digitally Triggered Event is for a calibration, select a **Calibration Name** from the drop-down list.
5. Click the **Output Lines** button to bring up the output **Line Status Pattern** screen and select which **Output Line or Lines** will be switched on when the triggered digital input pattern occurs. Click **OK**.

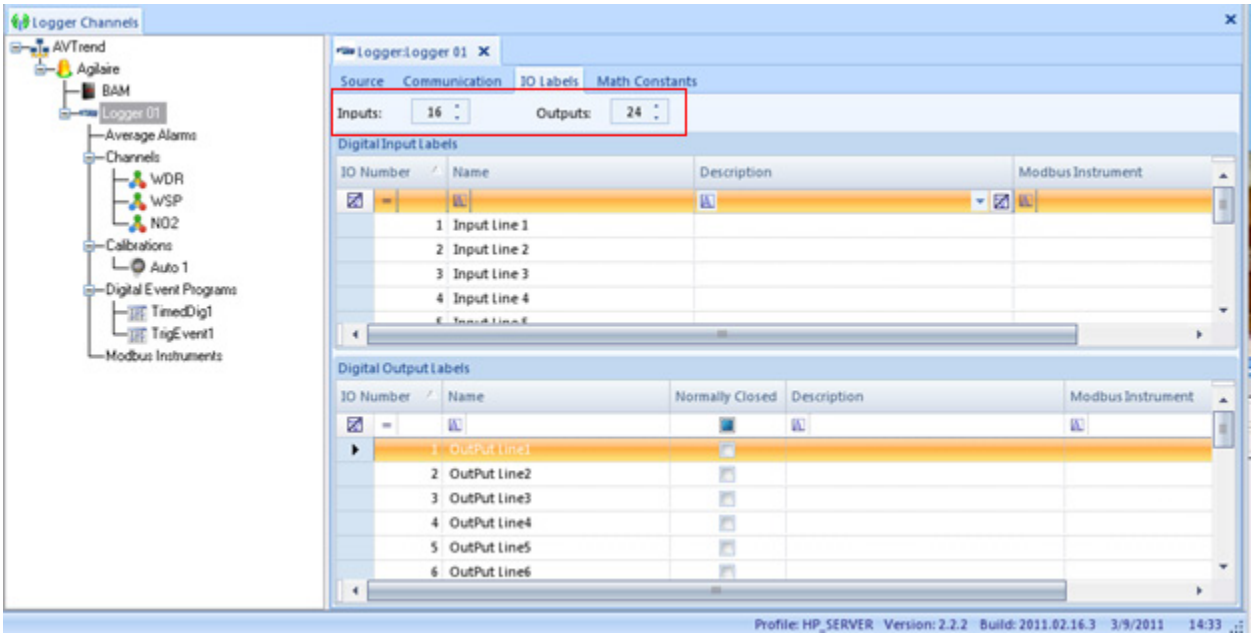
6. Click the **Trigger Digital Event Pattern button** to bring up the **Line Status Pattern** screen for Trigger Digital Input Pattern and select which **Input Line** or **Lines** turned **On** or **Off** will trigger the event and switch on the specified **Output Line(s)**.

7. In the lower left corner of the screen, select **And** or **Or**. If you select **And** (the default), the digital event program will be triggered **only if ALL** the specified conditions occur. If you select **Or**, the digital event program will be triggered if **ANY** of the specified conditions occur. Click **OK**.


Line Status Pattern
Trigger Digital Input Pattern
Select
Line Number
Name
Status
1 Input Line 1 Off On
2 Input Line 2 Off On
3 Input Line 3 Off On
4 Input Line 4 Off On
5 Input Line 5 Off On
6 Input Line 6 Off On
7 Input Line 7 Off On
8 Input Line 8 Off On
9 Input Line 9 Off On
10 Input Line 10 Off On
11 Input Line 11 Off On
12 Input Line 12 Off On
13 Input Line 13 Off On
14 Input Line 14 Off On
OR AND
Cancel
OK

Trigger Digital Input Line Status Pattern with OR/AND selection

▶ **Note:** AirVision supports download of logger I/O labels with a different number of inputs and of outputs. If the number of input and output cards on your data logger are not equal, you may encounter some download errors when downloading the labels. If this happens, define the actual number of physical inputs and outputs using the **IO Labels** tab. If you are using pseudo inputs/outputs, do NOT accept allowing the system to change the number of labels.



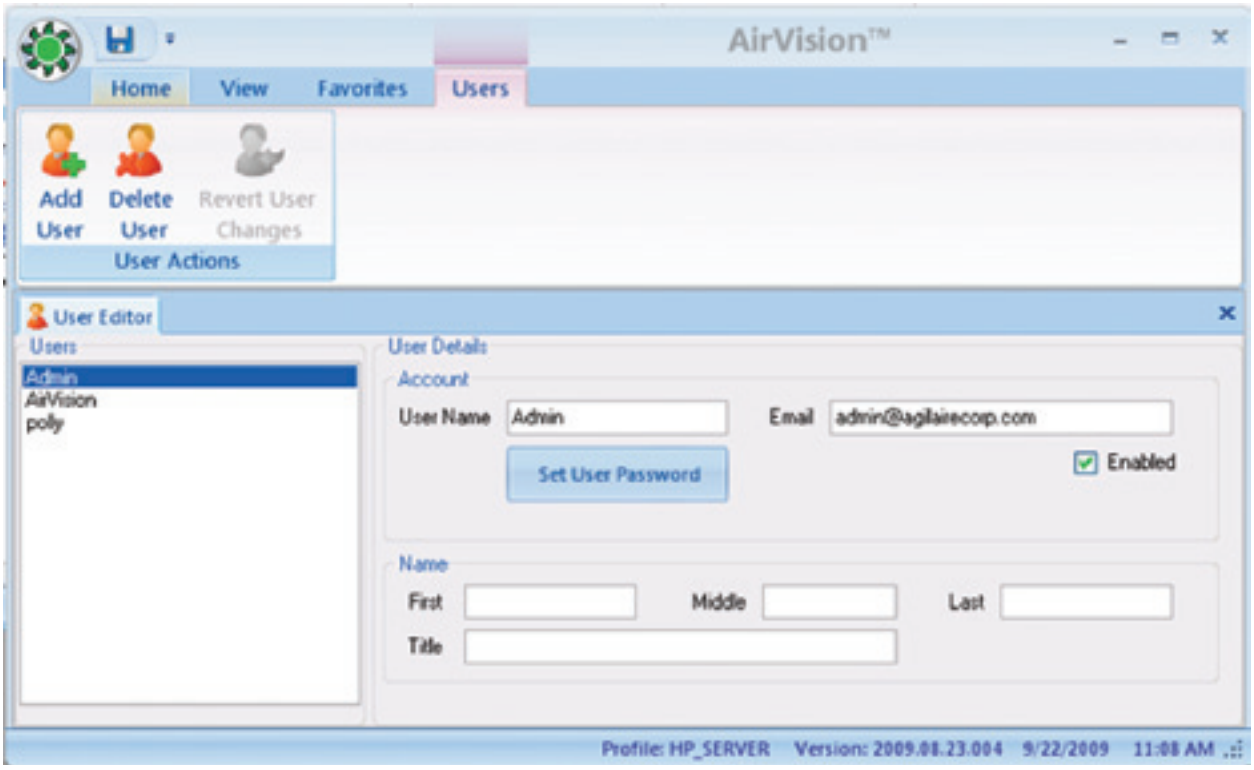
Different number of Inputs and Outputs Configuration Editors > Logger Channels > double-click Logger in tree menu > I/O Labels tab

Setting Up Email Alarms

AirVision can email specific flag information (alarms), ADVP rule notices, or scheduled reports to selected recipients. To set up the email service, follow these steps:

1. Enable Email Service:
   Open **Configuration Editors** > **Server Configuration** and double-click the **Executive** in the tree menu. Click the **Service Components** tab and be sure **Email Service Enabled** and **Auto Start** are selected. If you make changes, click **Save**.

2. Add Users and Email Addresses:
   In **Configuration Editors** > **Security** > **User Editor**, click the **Add User** button and enter a **User Name**, **Email Address**, and click **Set User Password**. **Name** and **Title** are optional. Click **Save**.

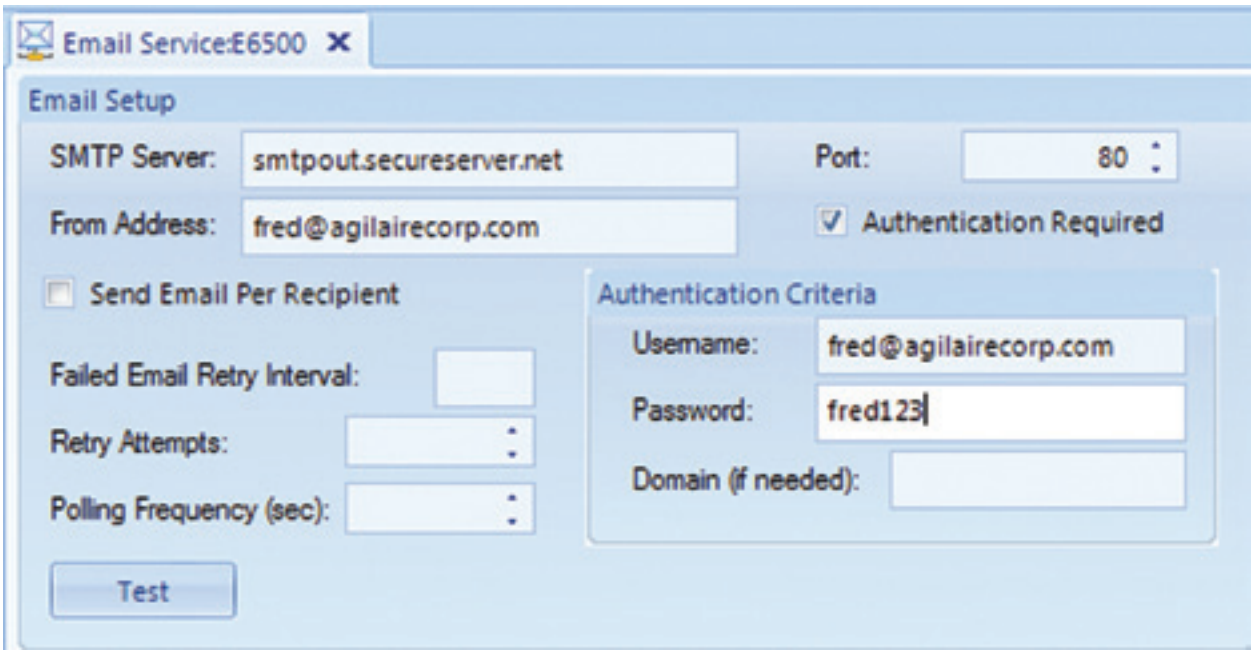


Adding Users in Configuration Editors > Security > User Editor

3. Configure SMTP settings:

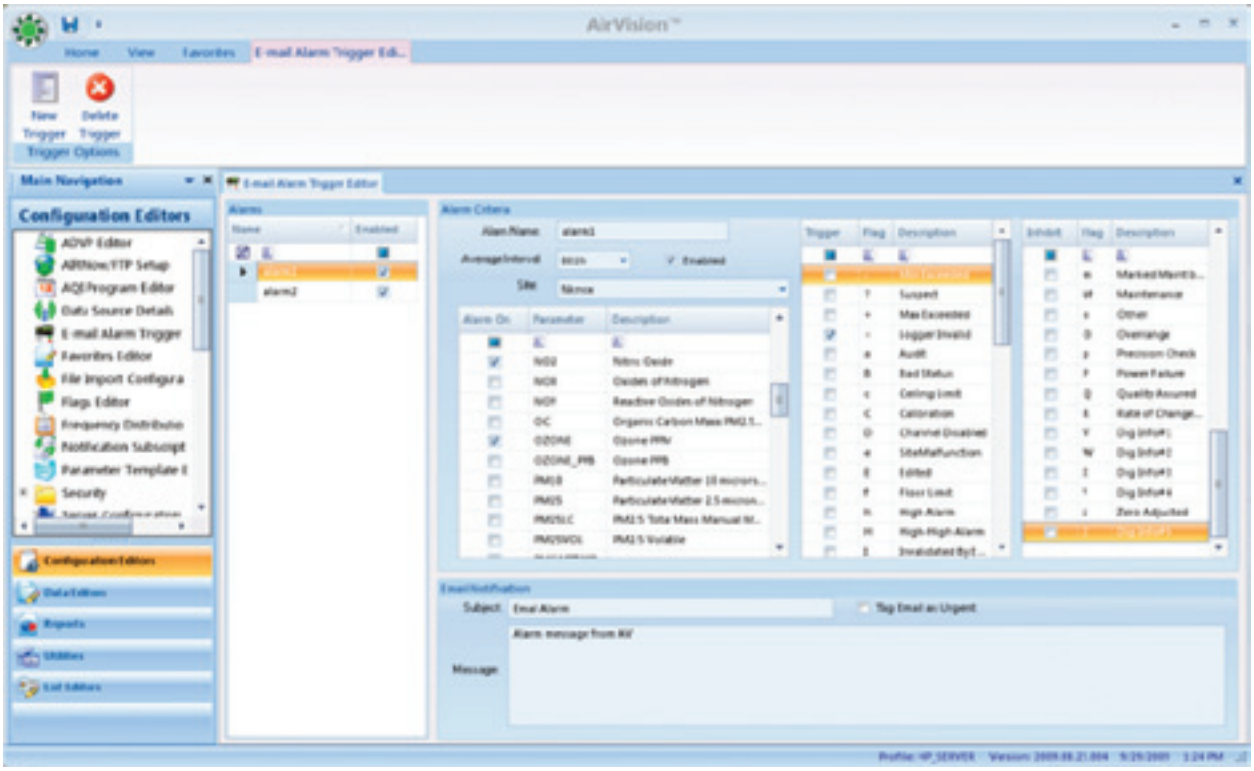
In **Configuration Editors** > **Server Configuration**, double-click the **Email Service** icon under **Service Configuration** in the tree menu and enter the following information):

- **SMTP Server**, for example, smtpout.secureserver.net
- **Port** number
- **From Address** for the sender of email, e.g., ErrorReporting@agilairecorp.com
- If **Authentication** is **Required**, check the box and enter a **Username** and **Password**.
- Check **Send email per recipient** if each recipient will receive email alarms, or leave unchecked for one email with multiple recipients shown.
- **Failed Email Retry Interval** (in seconds, minutes, or hours)
- Number of **Retry Attempts**
- **Polling Frequency** in seconds



Setting up Email Service in Configuration Editors > Server Configuration > Email Service

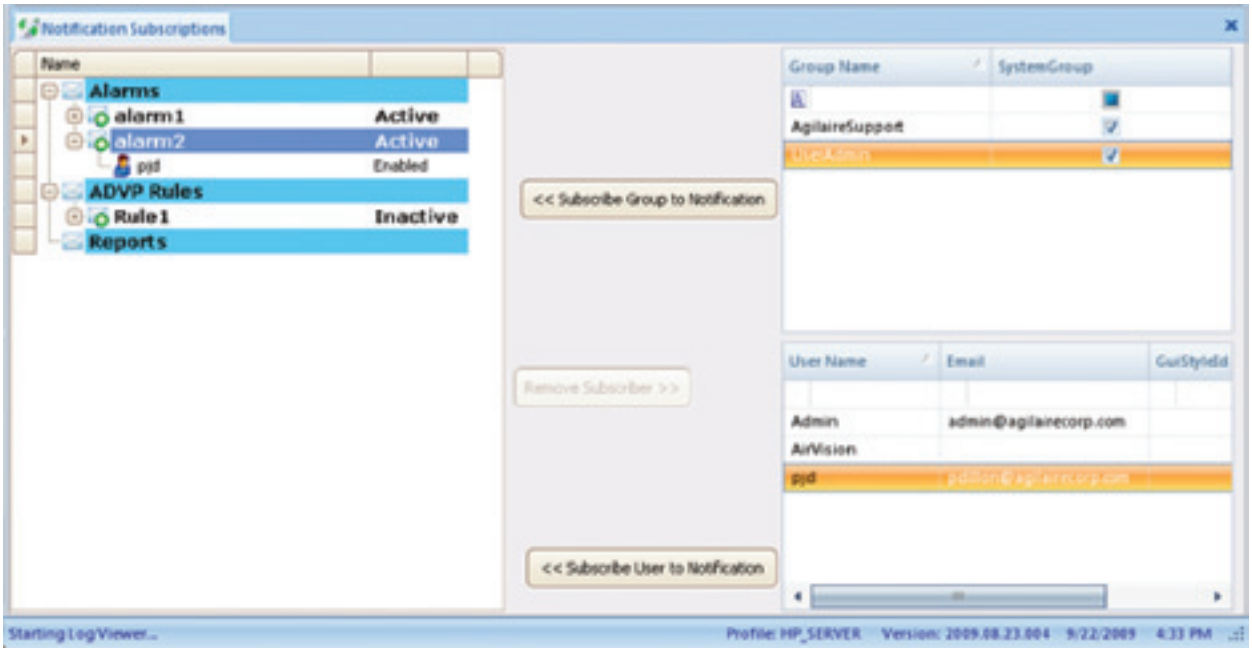
4. Define Email Alarms:
   In **Configuration Editors** > **Email Alarm Trigger Editor**, enter an **Alarm Name**, **Average Interval**, and a **Site**.
   Select which **Parameters** to **Alarm On** (send an email alarm), which **Flags** to use as a **Trigger** for those parameters, and which **Flags to Inhibit**. For example, you could configure an email alarm to be sent for the **Parameter** ozone when an Invalid flag is set except when a Calibration is set at the same time.
   For the **Email Notification**, enter a **Subject** with or without an **Urgent Tag**, and a text **Message**.



Defining Email Alarms in Configuration Editors > Email Alarm Trigger Editor

5. Add Recipients to Notification Subscriptions: (**Configuration Editors** > **Notification Subscriptions**. Either entire User Groups, Individual Users, or a combination can be defined for each alarm.

Click the **Save** icon.



Adding recipients for email alarm notification from Configuration Editors > Notification Subscriptions

6. To Schedule Alarm Checks, see “Scheduling Tasks.”

AIRNow/FTP Setup

Submitting AIRNow reports consists of three steps:

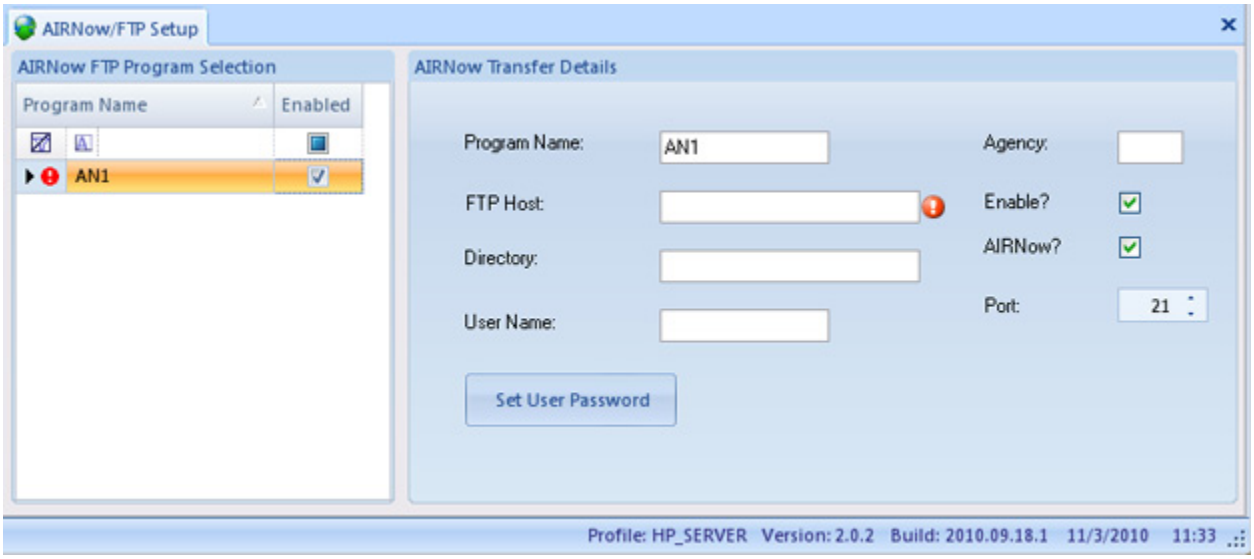
1. Check **Enable AIRNow Reporting** in **Site/Parameter setup** (**Configuration Editors**)
2. Enter **AIRNow Transfer Details** in **AIRNow/FTP Setup** (**Configuration Editors**)
3. Schedule **AIRNow FTP Transfer task** in **Task Scheduler** (**Configuration Editors**)

For **AIRNow Transfer Details** (step 2), open **AIRNow/FTP Setup** from the **Configuration** menu. To add a new transfer program select the **Add FTP Program** button on the Ribbon above the Main Navigation menu. As transfer programs are added they will appear in the **AIRNow FTP Program Selection** section. To open an existing transfer program, click the program name in the **AIRNow FTP Program Selection** section.

To set up a new AIRNow Transfer program, click the Add FTP Program button and enter the following fields:

- **Name** – The name that you choose to use to identify the transfer program.
- **FTP Host** – EPA's FTP address provided by EPA.
- **Directory** –Path to the destination directory provided by EPA.
- **User Name** – User ID provided by EPA.
- **Agency** – Agency Code provided by EPA.
- **Enable** – Enables the transfer program to function.
- **AIRNow** – Submits the report being transferred in AIRNow format.
- **Port** – **Port 21** as required by EPA.
- **Set User Password** – Clicking this button brings up a password box where you enter and confirm the password provided by EPA.

Click the **Save** icon.



AIRNow FTP Setup in Configuration Editors

Scheduling Tasks

All automatic actions in AirVision are managed by the **Task Scheduler** (**Configuration Editors** > **Task Scheduler**), which runs as part of the background AirVision service. The following tasks can be configured in the Task Scheduler, depending on your licensed options:

- ADVP Processing Task
- AIRNow FTP Transfer Task
- Alarm Processing Task
- Average Data Purge Task
- Average Rollup Task
- Database Sync Task
- Fill Average Data Gaps Task
- Instrument Poll Task
- Journal Message Purge Task
- Logger Poll Task
- Scheduled Command Line Task
- Scheduled Report Task
- SQL Execution Task
- New Task Group

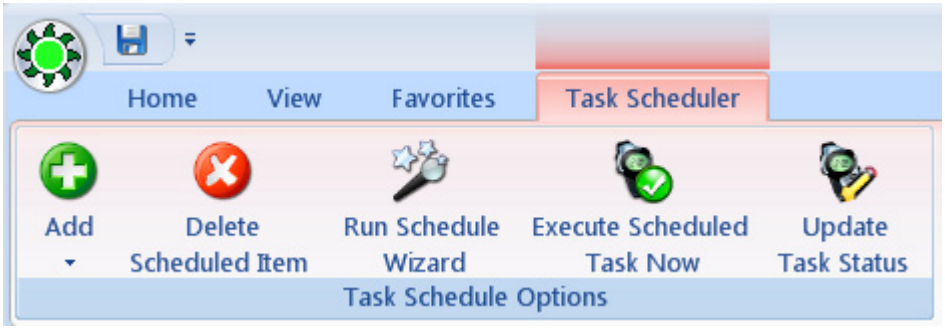
Some automatic actions in the 8872 are managed by the **Task Manager**, which runs as part of the background AirVision service. The Task Manager has three user interfaces:

- **Task Scheduler** (**Configuration Editors** > **Task Scheduler**) allows you to add, review, and edit individual and grouped task events.
- **Task Wizard** (**Configuration Editors** > **Task Scheduler** >**Run Schedule Wizard** button in ribbon at top of screen) allows you to create grouped polling events as well as events triggered by polling .
- **Task Display (Utilities** > **Scheduled Task Status**) is a constantly updating display of all tasks within the system, including the last time run, next execution time, and errors experienced during the last run.

Task Scheduler

The Task Scheduler has five **Task Schedule Options**:

- Click the **Add** button to add a scheduled task from the list above.
- Click the **Delete Scheduled Item** button to delete a selected scheduled task.
- Click **Run Schedule Wizard** button to bring up the **Task Wizard**, which guides you through scheduling new tasks.

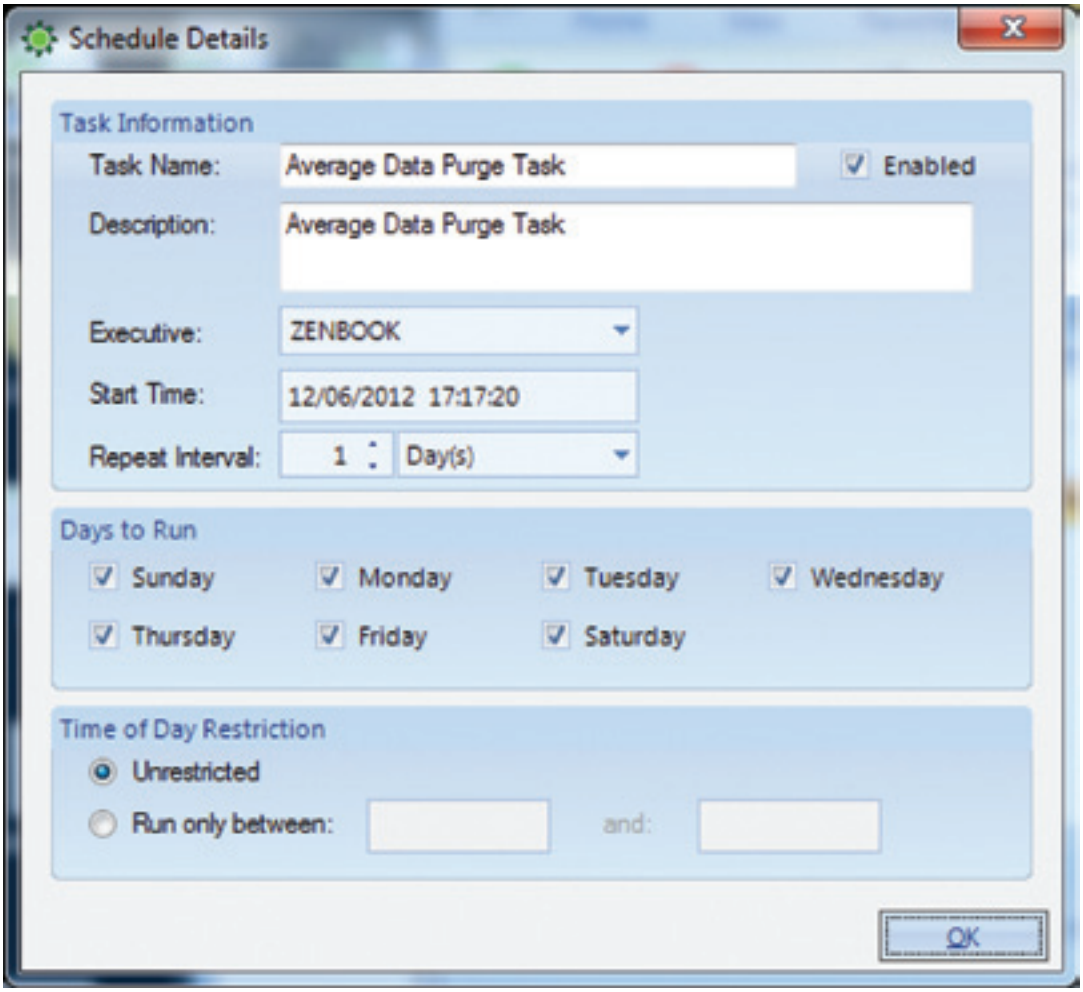


Task Schedule Options (Configuration Editors > Task Scheduler

- Click **Execute Scheduled Task Now** if you don't want to wait until the next time a selected task is scheduled to run.
- Click **Update Task Status** to bring up a utility screen that allows you to to update the last polled data time for polling tasks, which determines what the start time of the next poll will be. This utility has no effect on non-polling based tasks.

The number of sections in the **Task Scheduler** varies according to the displayed task. The following sections are displayed when a **Logger Poll Task** is selected:

- **Task Schedule** displays all scheduled tasks and cannot be edited.
- **Task Schedule Details** section is where **Executive**, **Start Time**, and a **Repeat Interval** are selected.
    - An **Advanced** tab is provided next to the repeat interval to allow the user to specify if the task is only to run on certain days of the week, or only in a 'window' of certain hours of the day. This is especially useful for polling tasks.

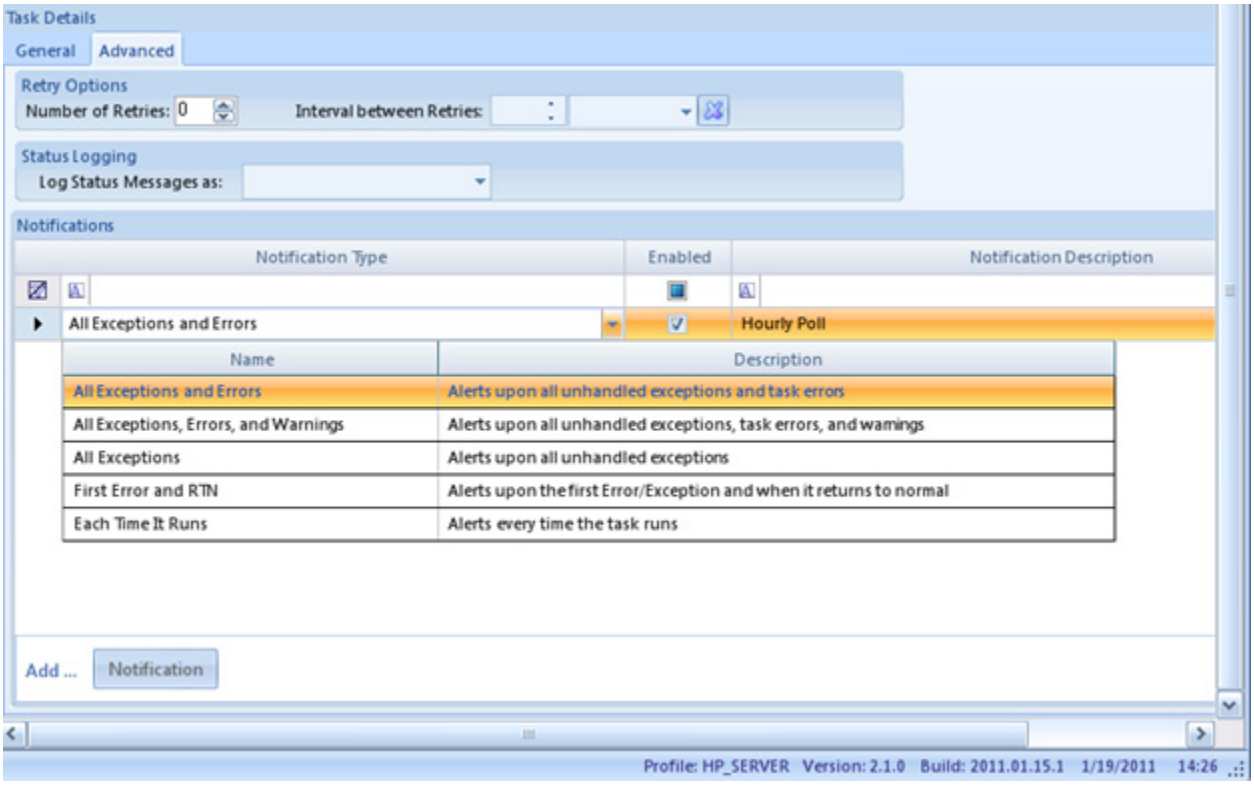


Task Scheduler showing a Logger Poll Task (Configuration Editors > Task Scheduler)

- The **General Tab** in the **Task Details** section is where you enter a **Task Name** and a **Task Description**. **Task Enabled** must be checked in this section before you can select **Enabled** in the **Scheduled Task Selection** section.

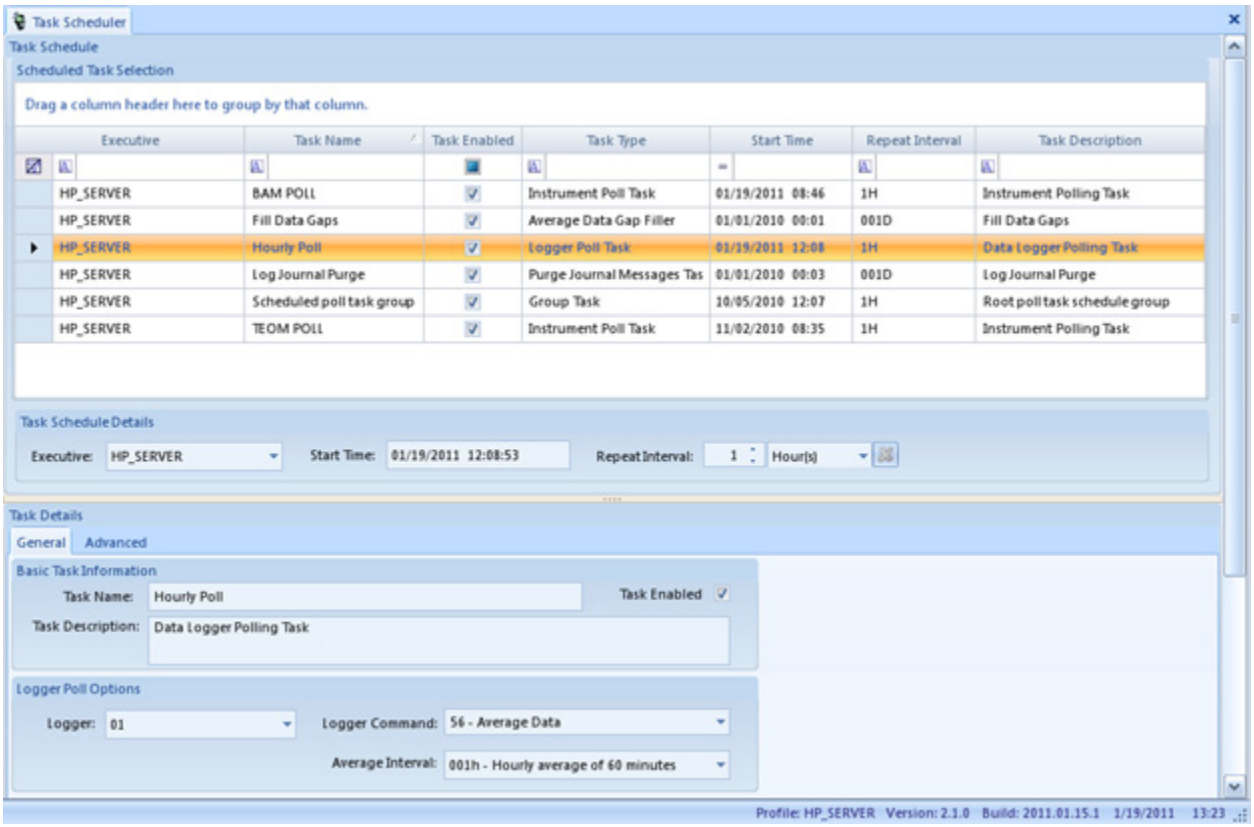
  The **Advanced Options** tab in the **Task Details** section defines the **Number of Retries**, the **Interval between Retries**, and whether to **Log Status Messages** as **Off**, **Information**, **Verbose** (for a problematic task), or **Debug**.

  The **Notifications** part of the **Advanced** tab allows configuration of **Notification Type** (All Exceptions and Errors; All Exceptions, Errors, and Warnings; All Exceptions; First Error and RTN (Return to Normal); or Each Time it Runs) followed by a **Description** of each Notification Type.



Task Details section of Task Scheduler showing Notification selections (Configuration Editors > Task Scheduler)

- The **Logger Poll Options** section defines the **Logger**, the **Logger Command** (e.g., Average Data), and the **Average Interval**.


Task Scheduler
Task Schedule
Scheduled Task Selection
Drag a column header here to group by that column.
Executive
Task Name
Task Enabled
Task Type
Start Time
Repeat Interval
Task Description
HP_SERVER BAM POLL Instrument Poll Task 01/19/2011 08:46 1H Instrument Polling Task
HP_SERVER Fill Data Gaps Average Data Gap Filler 01/01/2010 00:01 001D Fill Data Gaps
HP_SERVER Hourly Poll Logger Poll Task 01/19/2011 12:08 1H Data Logger Polling Task
HP_SERVER Log Journal Purge Purge Journal Messages Tas 01/01/2010 00:03 001D Log Journal Purge
HP_SERVER Scheduled poll task group Group Task 10/05/2010 12:07 1H Root poll task schedule group
HP_SERVER TEOM POLL Instrument Poll Task 11/02/2010 08:35 1H Instrument Polling Task
Task Schedule Details
Executive: HP_SERVER
Start Time: 01/19/2011 12:08:53
Repeat Interval: 1 Hour(s)
Task Details
General
Advanced
Basic Task Information
Task Name: Hourly Poll
Task Enabled
Task Description: Data Logger Polling Task
Logger Poll Options
Logger: 01
Logger Command: 56 - Average Data
Average Interval: 001h - Hourly average of 60 minutes
Profile: HP_SERVER Version: 2.1.0 Build: 2011.01.15.1 1/19/2011 13:23

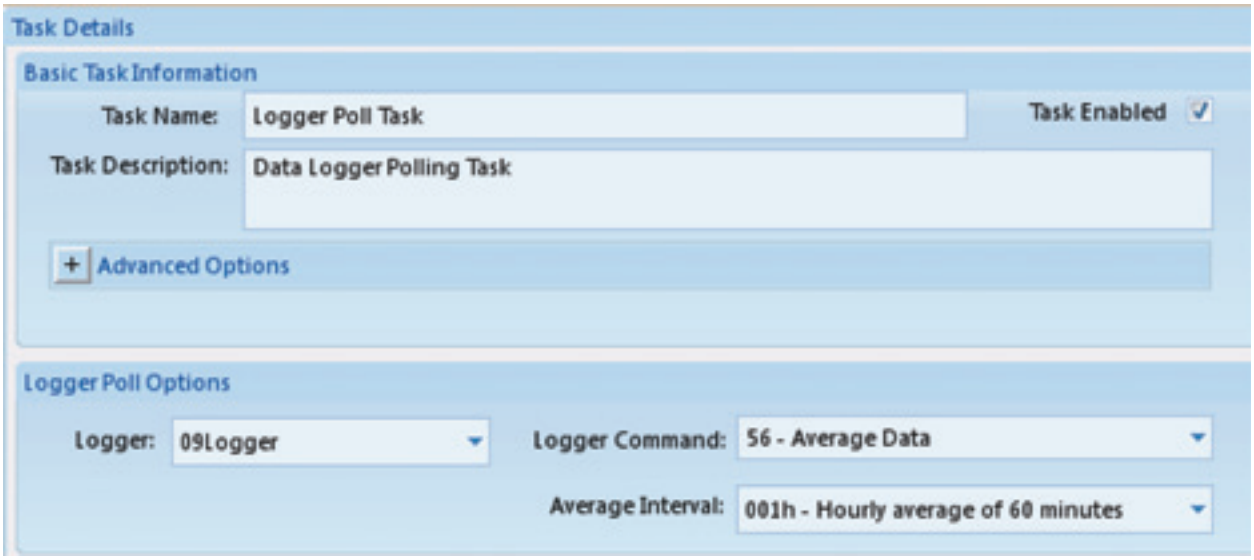
Task Scheduler showing a Logger Poll Task (Configuration Editors > Task Scheduler)

To configure an individual task in the **Task Scheduler** (**Configuration Editors** > **Task Scheduler**), click the **Add** button in the ribbon at the top of the screen and select one of the following categories:

- **ADVP Processing Task** handles tasks according to ADVP rules. ADVP reviews data against configured ADVP rules for matches, and runs configured Actions.
- **AIRNow FTP Task** handles automatic transmission of AIRNow data to EPA or other FTP servers. A selection is available in the task to designate OBS file format or the new AQCSV file format. If you need both, you would set up two tasks, most likely as part of a task group.

▶ **Note:** Submitting AIRNow reports consists of three steps:
Check **Enable AIRNow Reporting** in the **Site/Parameter setup**,
Enter **AIRNow Transfer Details** in **AIRNow/FTP Setup** (**Configuration Editors**),
Schedule **AIRNow FTP Transfer task** in **Task Scheduler** (**Configuration Editors**).

- **Alarm Processing Task** reviews alarm Triggers for matches, creates email alerts, and tells AirVision when to process a particular alarm rule. If you use task groups and designate tasks to run in sequence, you can designate alarms to be processed immediately after a data poll.

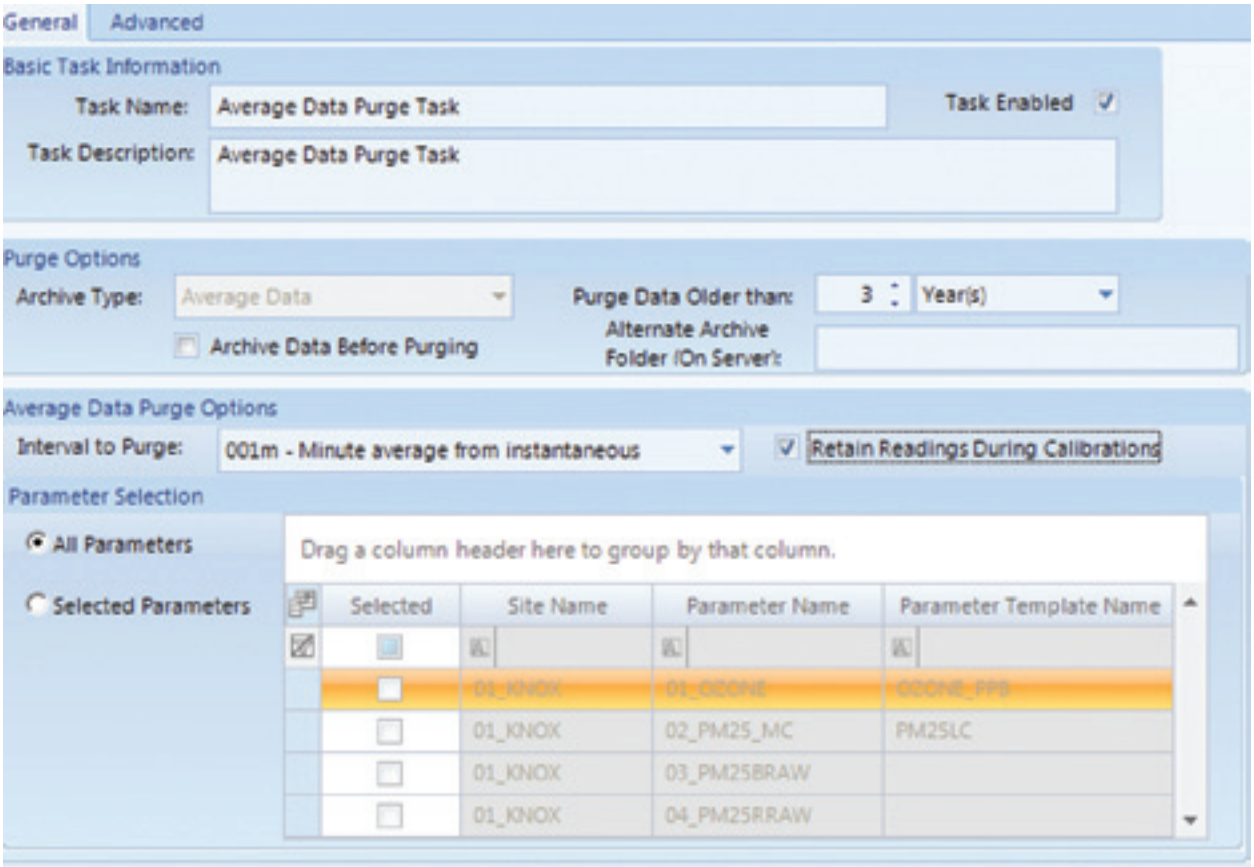


Logger Poll Task in Configuration Editors > Task Scheduler

- **Average Data Purge Task** purges or archives old data from the database. Eventually, the AirVision database will become so big that it takes a long time to back it up, so it is helpful to remove and/or save old data, in particular minute data. You can choose any average interval to be scheduled for Purge or Archive. Purged data will be permanently deleted from the database. Archived data is copied to an external file before purging. Archived data is stored with all flags and annotations and can be re-imported later. AirVision uses specialized data keys so sites and channels can be renamed or renumbered and archived data can still be correctly imported. Select the age of the data to purge: **Purge Data Older Than** a specified number of seconds, minutes, hours, days, weeks, or years. We recommend purging 1-minute data older than 1 year to keep the database within allowable size.

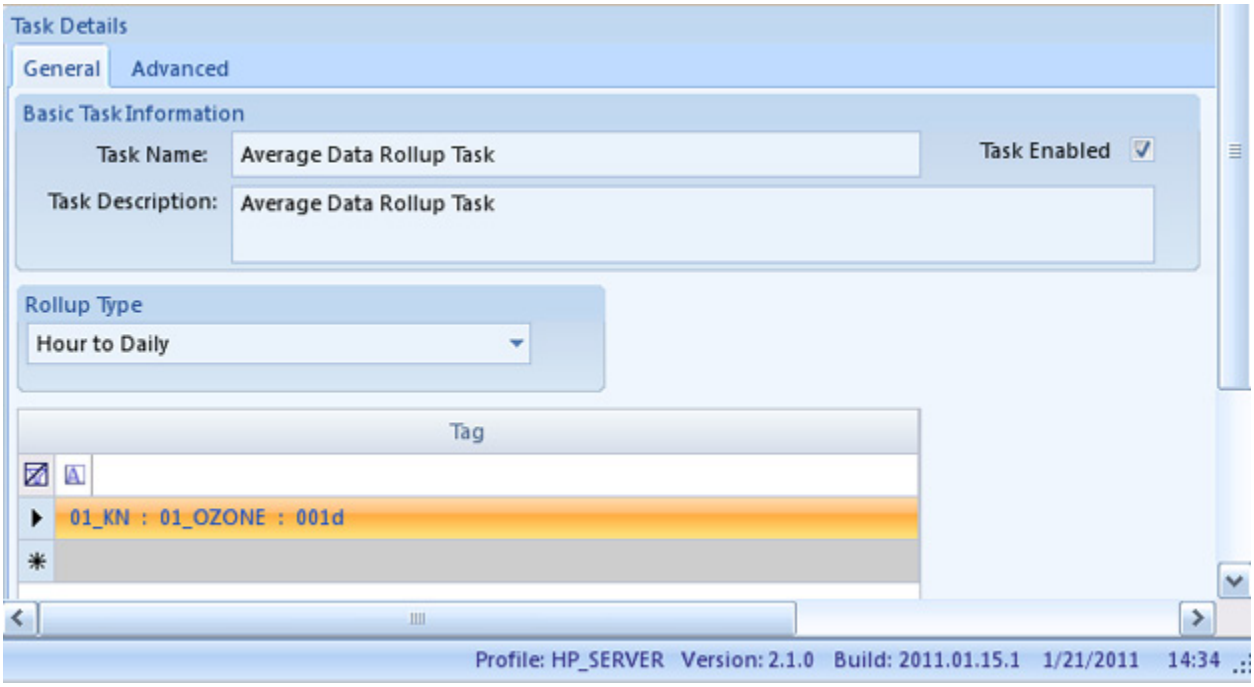
▶ **Note:** Average Data can be purged manually via the **Utilities menu>Purge Average Data**.

A checkbox option allows you to **retain data during calibrations**. If selected, any data flagged with the **C** flag will not be purged. This allows you to retain minute data from calibrations (e.g., for use in the Calibration Trend Graph's Response Plot) while still removing old minute data.



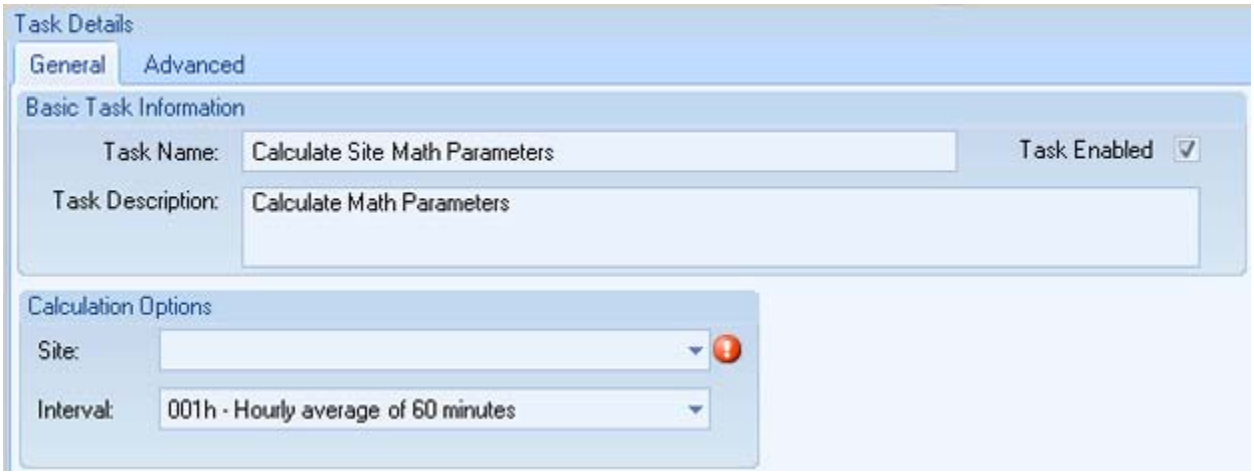
Purge or archive data in Configuration Editors > Task Scheduler

- **Average Data Rollup Task** allows shorter term averages to be rolled up into larger block or rolling averages. For more information, see "Data Rollup Processor" in Chapter 8 "Optional Features."



Automatic Rollup Task in Configuration Editors>Task Scheduler>Add Average Rollup Task

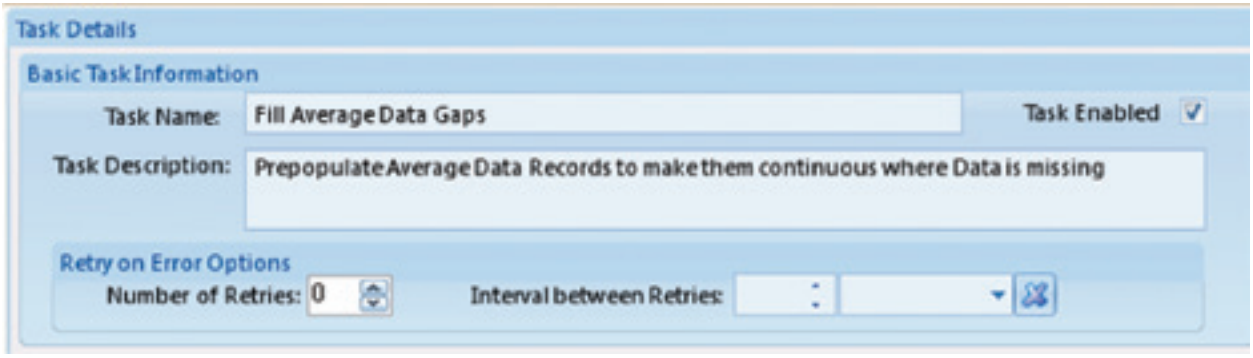
- **Math Task Scheduler**
  The task scheduler can execute equations automatically using the **Calculate Math Parameters Type** task. This task operates on a particular site and interval combination, and seeks out all equations for which there are fully matching parameter templates. If an equation in the table can't be executed on that site for lack of parameter templates or available data, the equation is skipped.



Math Task Scheduler Details

- **Fill Average Data Gaps Task** prepopulates Average Data Records to make them continuous where data is missing. This task inserts top of the day blank records in the database to improve reporting and data query performance. Filling average data gaps is critical for optimizing the performance of AirVision reporting, and should be configured to run every day after midnight in every system.Each system needs only one of these tasks. The screen defaults to a repeat interval of one day and a time to run of 00:00:00 (midnight).

▶ **Note:** Fill Data Gaps can be run manually from the **Utilities** menu.

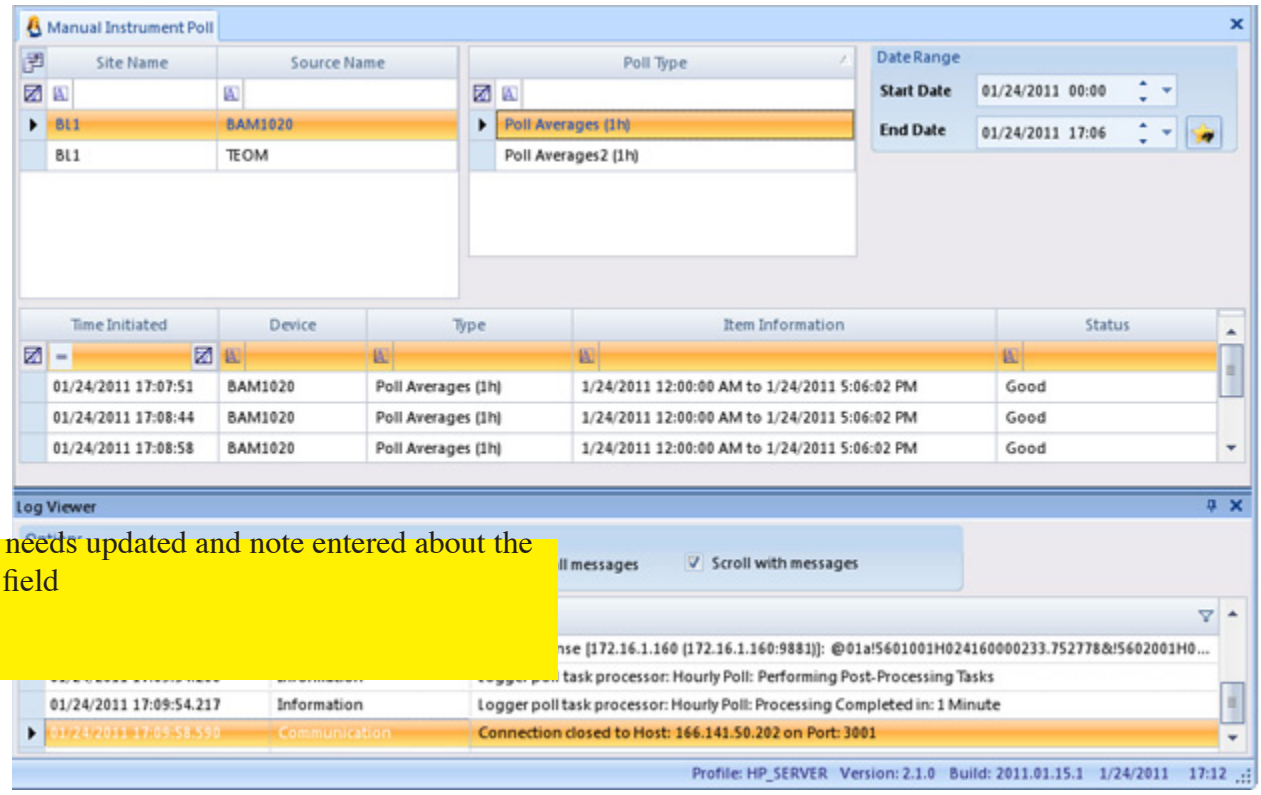


Fill Average Data Gaps Task from Configuration Editors > Task Scheduler

fill data gaps should have wording updated as it is no longer a needed/required task

- **Instrument Poll Task** directly polls PM Samplers and Instruments such as BAMs without using data loggers.

▶ **Note:** Instruments can be polled manually by selecting **Manual Instrument Poll** from the **Utilities Menu**.



screenshot needs updated and note entered about the 'advanced' field

Manual Instrument Poll from Utilities Menu

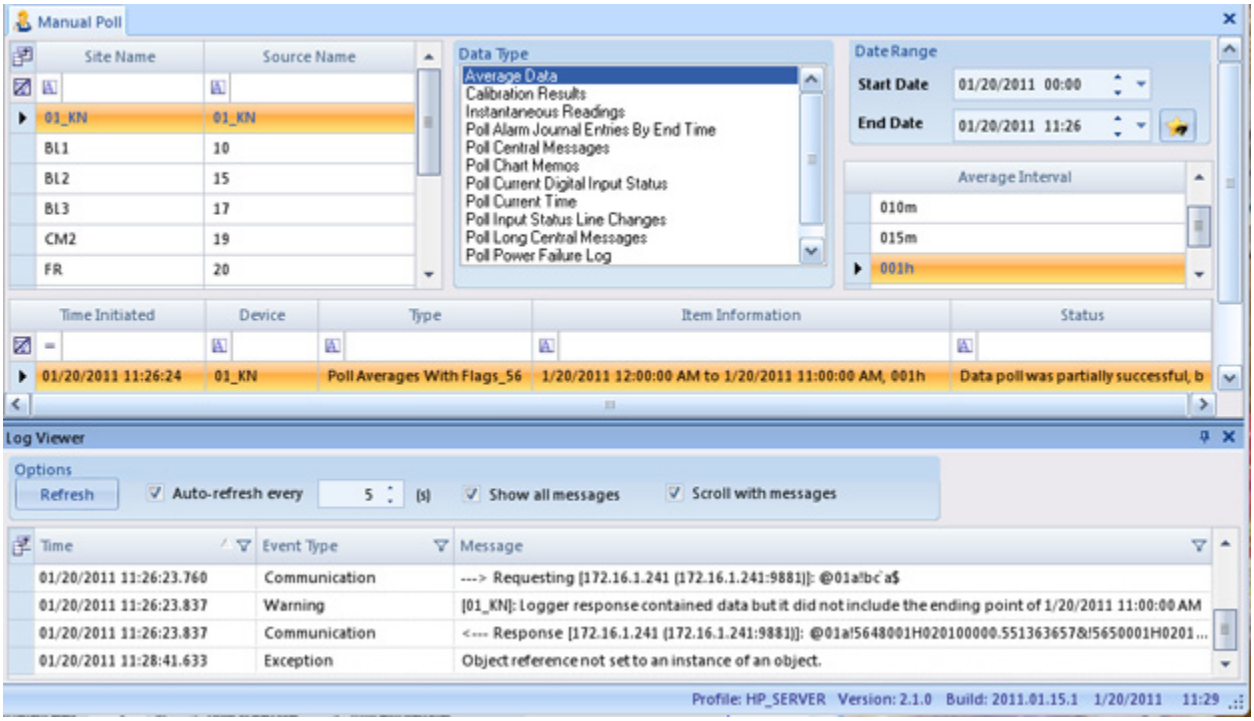
- **Journal Message Purge Task** removes Event Log journal messages (internal error logs) that are older than a specified age in seconds, minutes, hours, days, weeks, or years. The purge occurs at a specified **Repeat Interval**. An option is available to **Archive Data Before Purging**.

▶ **Note:** Journal messages can be purged manually via the **Utilities menu>Purge Journal Messages**.

- **Logger Poll Task** polls a data logger at a specified Repeat Interval in seconds, minutes, hours, or days. The Task must be named and a data logger must be selected. Select a Logger Command from the following drop-down list:

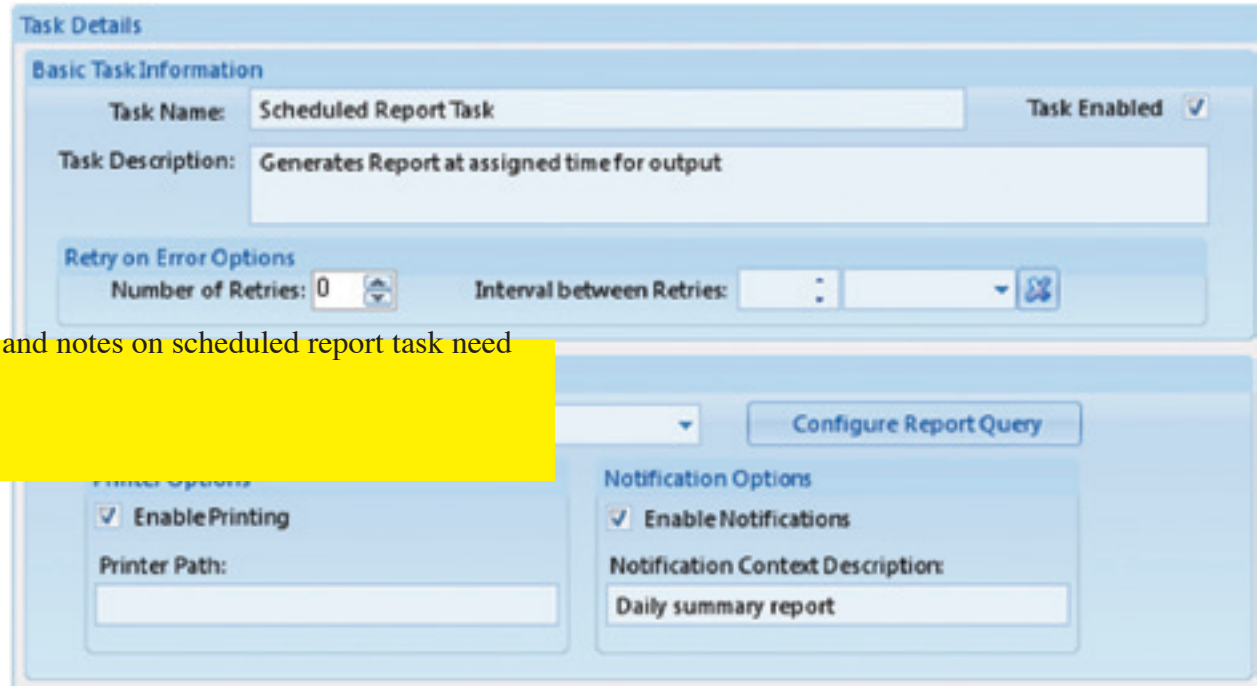
56	Average Data
46	Calibration Results
IJ	Instantaneous Readings
LL	Poll Current Time
DD	Poll Input Status Lind
23	Poll Current Digital Input
NP	Poll Alarm Journal Entries
BB	Synchronize Logger Time
JK	Poll Long Central Messages
KK	Poll Chart Memos
EF	Power Failure Log

▶ **Note:** The logger also can be polled manually via **Utilities >Manual Poll**. Results are displayed in the **Log Viewer** below the query screen.



Manual Poll in Utilities Menu

- **Scheduled Command Line Task** can be used to automate any Windows command line function, such as NTBackup.
- **Scheduled Report Task** handles automatically printed or emailed reports. Any system can be scheduled for distribution to a designated printer and/or email recipients.
  1. Select a **Report** from the list of available reports
  2. Configure a Report Query (select average interval, sites, parameters, and time range). (This feature functions like the Favorites Editor.)
  3. If the report will be printed, **Enable Printing** and designate the **Printer Path**.
  4. If the report will be emailed, **Enable Email Notification** and give the report a name that will appear in the Notification Subscriptions Editor. (Users and/or User Groups must be designated in **Configuration** > **Notification Subscriptions Editor**.)

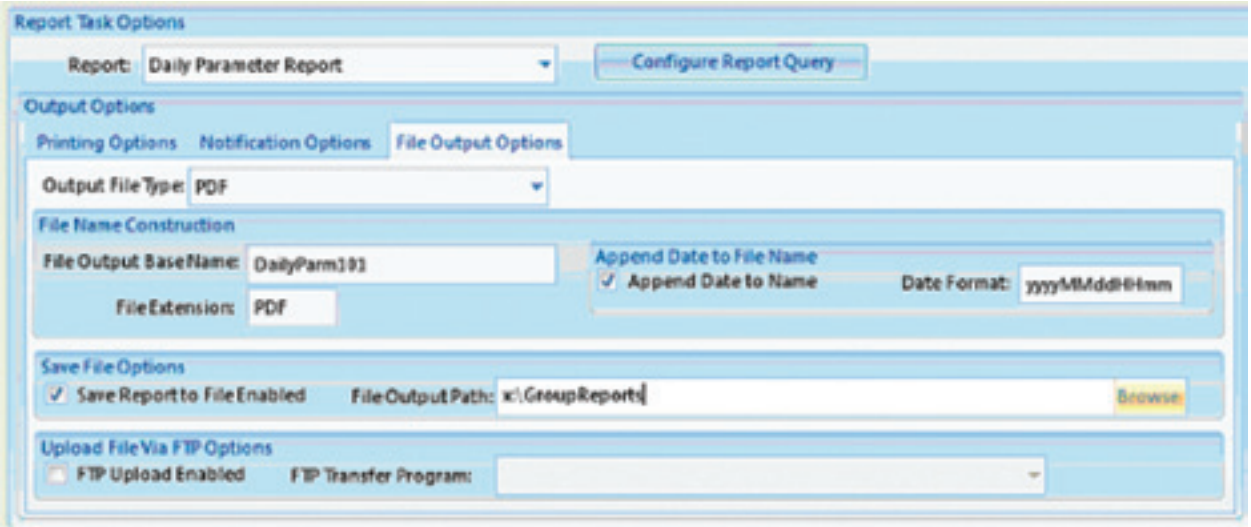


screenshot and notes on scheduled report task need updated

Scheduling printing and email notification of scheduled report in Configuration Editors > Task Scheduler

The third tab in the output option section for scheduled reports is **File Output Options** This option can be used to write the scheduled report to a local or network drive, and/or to FTP the file to a particular FTP server.

You must select the output file type (CSV, HTML, PDF, etc), and the base file name:



File Output Options tab in Scheduled Reports

You can optionally have the scheduled task append the current date/time to the file name (e.g., DailyParm200906271900). Note that Windows does not allow "/" or ":" characters in file names. This option ensures that new files do not overwrite existing files in the directory. If this option is left off, the task will overwrite the file each time the tasks runs.

You can then select either of two options:

Write to File Enabled-- select/browse to a directory folder for the destination file

FTP Upload Enabled--select from a previously configured FTP program for automatic FTP of the file to a particular server.

- **SQL Execution Task**

  To add a **SQL Execution Task,** click the green **Add** button and select **SQL Execution Task.**

  Select the Executive, Start Time, and Repeat Interval.

  Name the SQL task or use the default name.

  Enter the **SQL Command Text**.

  Click the **Save** button.

▶ **Note:** SQL commands can be executed manually via **Utilities>SQL Execution Tool**.

- **New Task Group**

  Task Groups allow multiple tasks to be grouped together in one polling process instead of multiple individual tasks. Tasks can be defined to run groups in parallel, sequentially, or as sub-tasks of other task groups to allow mixing of parallel and sequential operations. To add a new sub task to the Task Group click **Add Sub Task** button and select the task from the drop-down list. The Sub Task drop-down list has the same options as the Add task button at the top of the Task Scheduler. When you select a Sub Task, a screen will pop up asking for the following information:

  Task Name displays the name of the sub task that was selected. The Task Name can be modified.

  Task Description is automatically filled in.

  Task Enabled must be selected if the sub task is to run under the Group Task.

  Advanced Options (not required) allows the configuration of **Number of Retries** and the **Interval between Retries**.

  Other fields vary according to which sub task is selected.

  When you click **OK** in the pop-up screen the new sub task will be added in the **Sub Tasks** section.

  Select **Execute Tasks In Parallel** in the **Group Options** section if all sub tasks are to run at the same time.

  If the sub tasks are to be run sequentially, enter a number in the **Execution Order** column in the **Sub Tasks** section.

Select the **Fail Group on Error** column if you want the whole Task Group to stop running if an error occurs.

Task Type indicates the sub tasks that are part of one group task.

Edit Task allows you to make changes in the same pop-up window that came up when the **Add Sub Task** button was clicked.

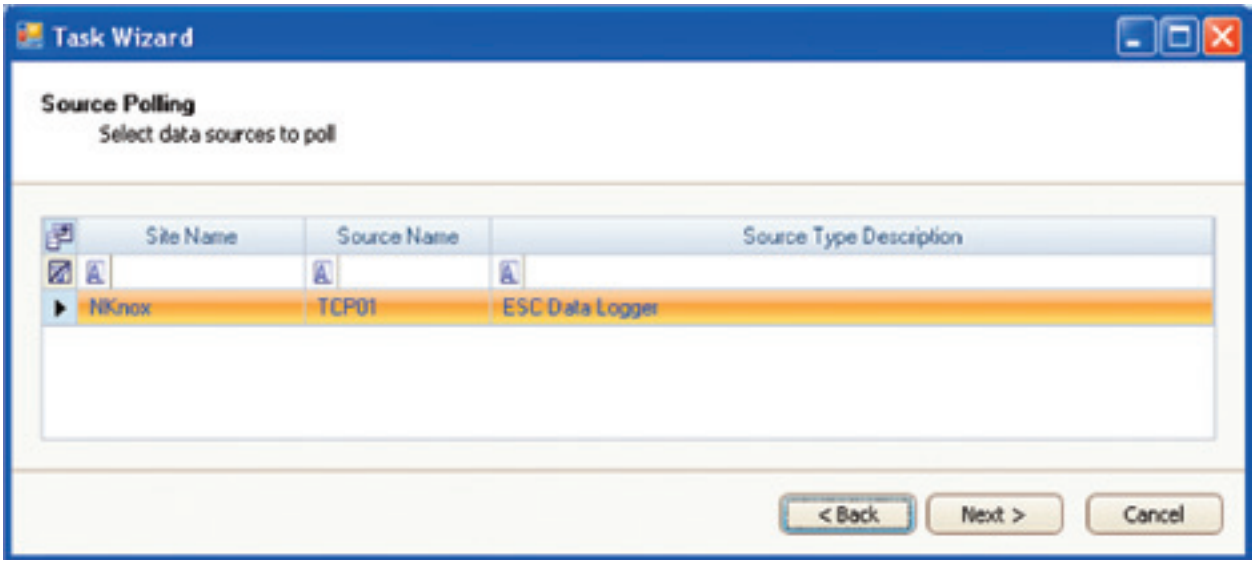
To remove a task from the Task Group select the task in the **Sub Task** section and click the **Delete Selected Sub Task** button.

Schedule Task Wizard

The Task Wizard can be used to manage dozens of polling tasks running in a single system. To set up task groups:

Open the **Task Wizard** (**Configuration Editors** > **Task Scheduler** > **Run Schedule Wizard** button on ribbon at top of screen) and click **Next**

Select **Site** and **Source** (including **Source Type Description**) and click **Next**.

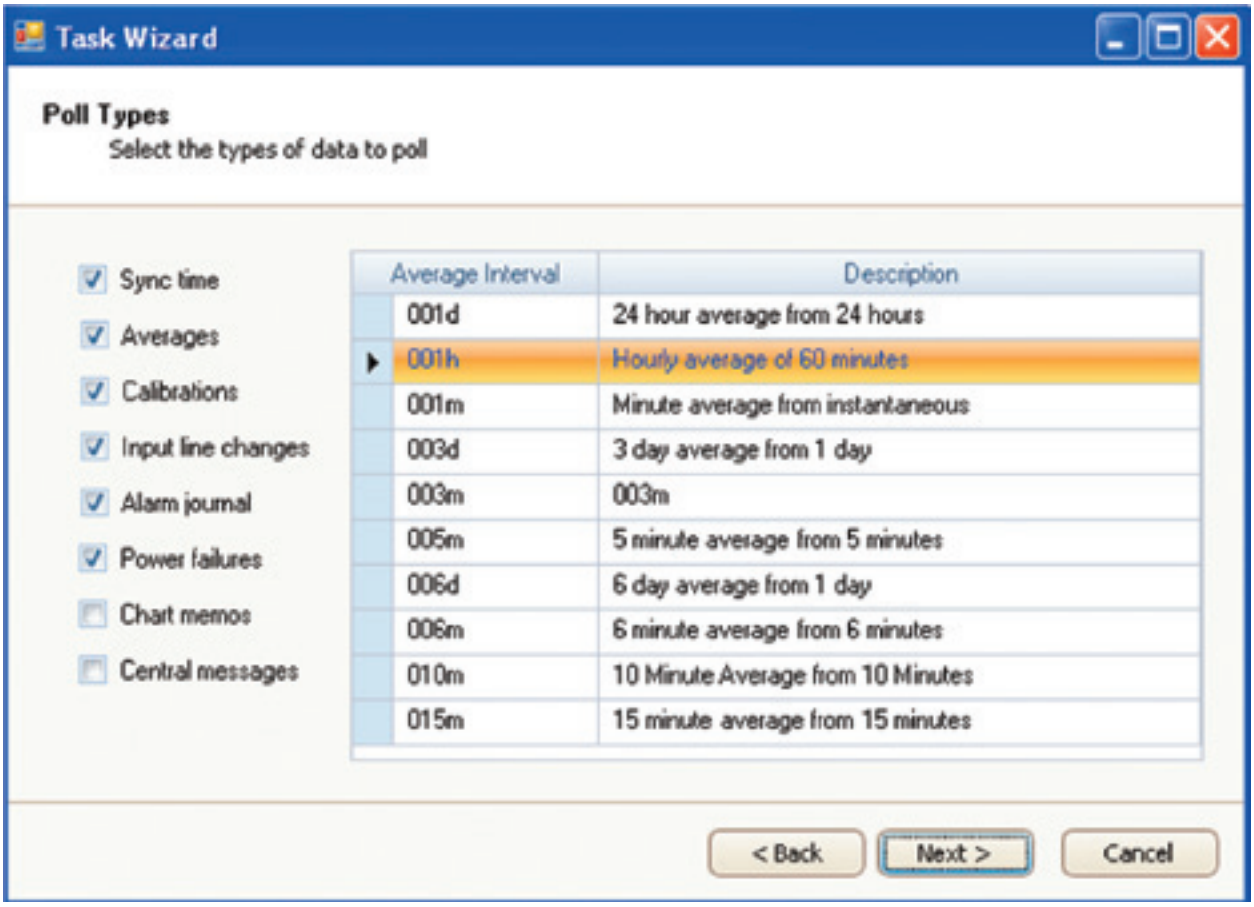


Selecting Site and Source Name in Task Scheduler Wizard (Configuration Editors > Task Scheduler > Run Schedule Wizard)

Select **Poll Types**, or types of data to poll from the following checklist:

Sync time,
Averages,
Calibrations,
Input line changes,
Alarm journal,
Power failures,
Chart memos,
Central messages.

Click **Next**.



Poll Types in Task Scheduler Wizard (Configuration Editors > Task Scheduler > Run Schedule Wizard)

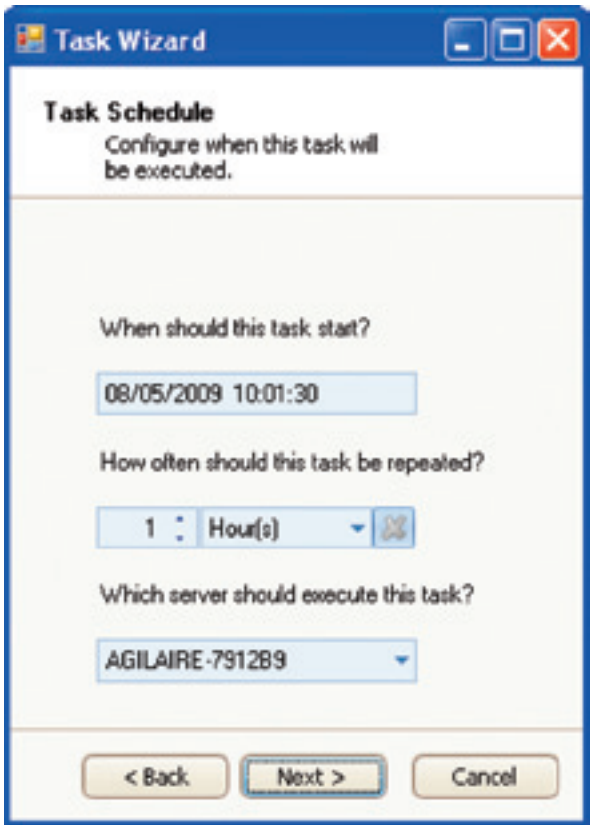
Select the following configurations from drop-down lists:
when the task should start,
how often it should be repeated,
and which server should execute the task.

The next screen will ask you to **Confirm Task Creation**. Click **Next** to save new task to database.

The last screen will say you have successfully completed the wizard. Click **Finish**.

▶ **Note:** The **Task Wizard** can also be accessed directly from the **Utilities** menu.

screenshot needs updated (also may want to add something about the ADVP rule selection screen IF a user has ADVP)

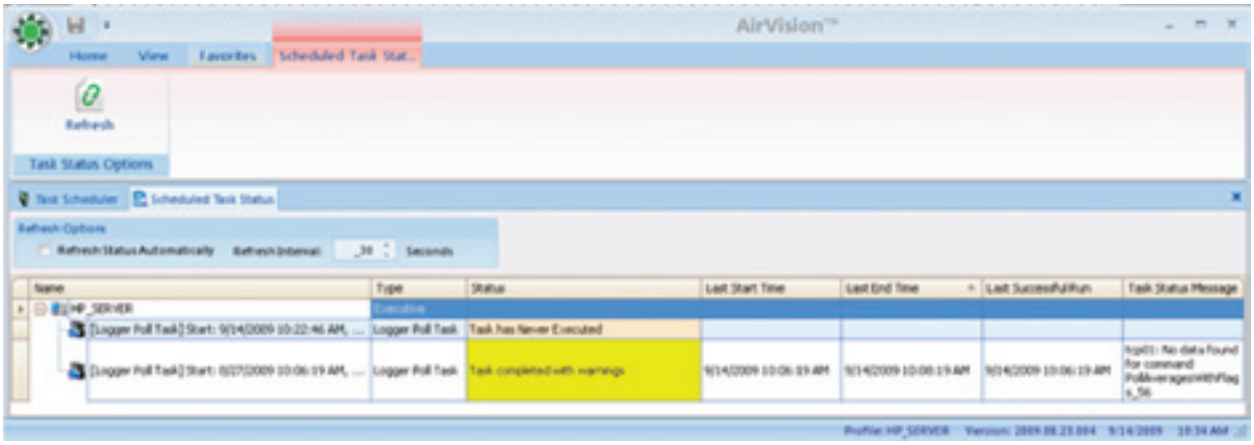


Task Schedule in Task Scheduler Wizard (Configuration Editors > Task Scheduler > Run Schedule Wizard)

Task Display

Task Display (Utilities > **Scheduled Task Status**) is a constantly updating display of all tasks within the system, including the last time run, next execution time, and errors experienced during the last run.

By default, the display will not refresh, but **Refresh Status Automatically** can be selected at the top of the screen.



Task Display from Utilities > Scheduled Task Status

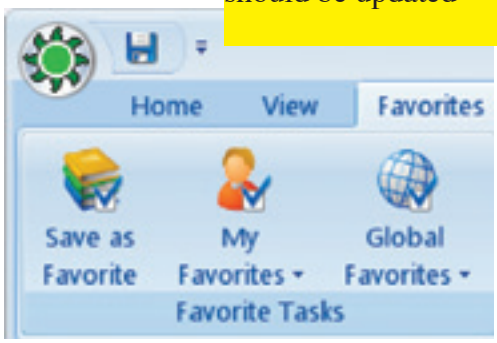
screenshot needs updated and notes should be added for the additional toolbar buttons/options

DONE-
favorites path should be Configuration Editors > My Favorites Editor

Favorites Editor

the 'favorites menu' screenshot should be updated

AirVision simplifies regular tasks with a list of user-defined **Favorites**, which function like Favorites in Internet browsers. Favorites can be created for most menu items, including reports, editors, configurations, journals, calibration functions, file import, security settings, logger functions, emails, and task scheduling. Favorites can be saved for different sites, parameters, average intervals, and date ranges. They can be saved for all users or for one user.



Favorites menu

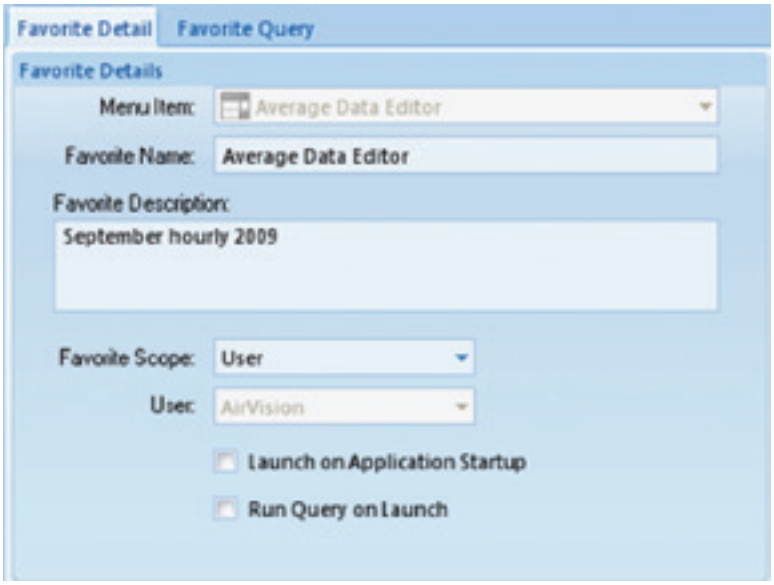
Creating a Favorite

To create a favorite, open **Configuration Editors > My Favorites Editor**. Click the red **Add Favorite button** on the left side of the ribbon.

Favorite Detail Tab

Under the **Favorite Detail** tab of the Favorites Editor: select a **Menu Item** from the drop-down list, enter a **Favorite Name**, enter a **Favorite Description** (optional), select a **Favorite Scope** from the drop-down list (**User** or **All Users**) and select from the following options:

- **Launch on Application Startup** to run the Favorite upon logging in to AirVision
- **Run Query on Launch** to execute data retrieval when the Favorite is selected.



Add a Favorite screen

Favorite Query Tab

Next, open the **Favorite Query** tab if it is available.

▶ **Note:** The Favorite Query tab will only be in the Favorites Editor after a Menu Item is selected that requires a time range, interval, and parameter(s), such as the Average Data Report and the Average Data Editor.

Select a **Date Range**, choose an **Average Interval** and select a **Parameter**. To select more than one parameter, drag the arrow in the blue left column or hold down the **Ctrl** key while you select parameters.

To save a favorite when you're in any data editor or report, complete a query, and select **Favorites** from the top menu. The ribbon bar will change to show the favorites menu.

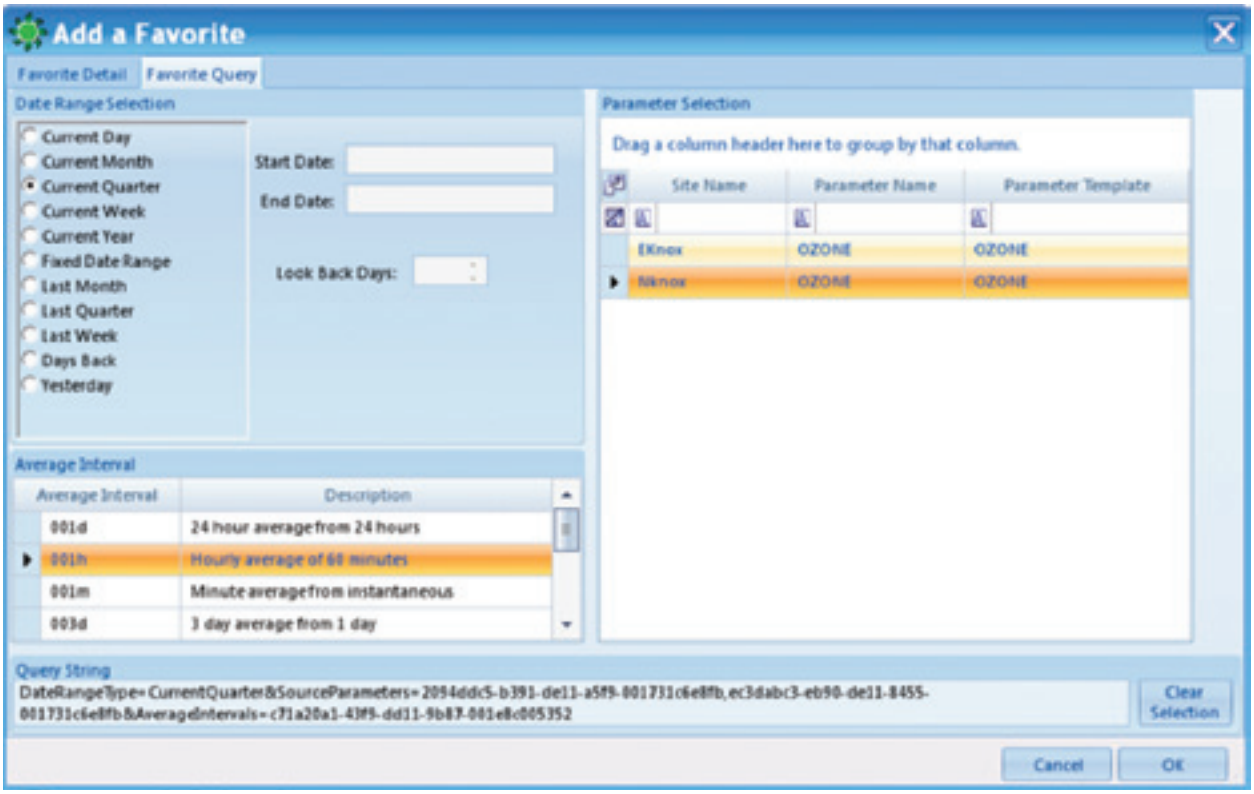
Select **Save as Favorite** to bring up the **Add a Favorite** screen.

You can also configure the **Favorite** by selecting the **Favorite Query** tab after you select **Save as Favorite**. From this screen you can adjust the site/parameter list, date range, or average interval. These values can also be adjusted later in the **Favorites Editor** in the **Configuration menu**.

To return to the ribbon controlling the current application, select the top menu function (above the ribbon), for example, Average Data Editor.

To use an existing Favorite, select **Favorites** from the top menu (above the ribbon bar), select **User Favorite** or **Global Favorites**, and the saved **Favorite**.

A copy button on the ribbon allows you to copy an existing favorite for slight modification, if needed.



Favorite Query tab from Add a Favorite

Configuring Security

User security in AirVision is set up by administrative personnel and is similar to Microsoft Windows:

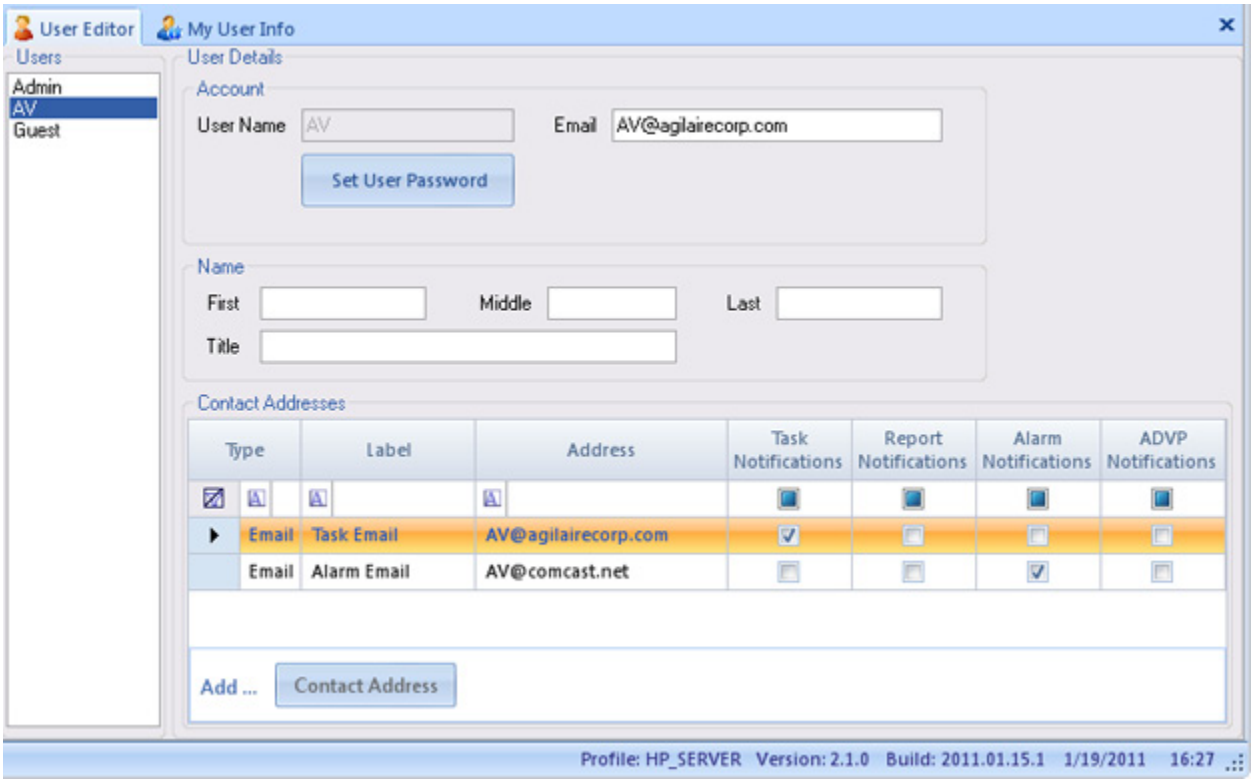
- Each system user has an identity, including a username and password
- A User may be a member of one or more User Groups
- Access and rights are assigned to User Groups

User Groups in AirVision are usually assigned by job responsibility (e.g., Data QA, Site Technicians, System Administrators). A group can optionally have its access limited to only certain monitoring sites. Users can be members of more than one **Group**, and each site can have a different access group.

User Editor

Administrators can add or delete users: open **Configuration Editors** > **Security** > **User Editor** and click **Add User** or **Delete User** button. Enter a **User Name** and **Set User Password**. Enter an **Email** address for the user .

In the **Contact Addresses** section of the screen you can click **Add Contact Addresses** and enter multiple email addresses for the same user to receive different notifications at different email addresses. Check the notifications to be emailed to each email address: Task, Report, Alarm, or ADVP. Each **Label** must have a different name or the database will not accept it.

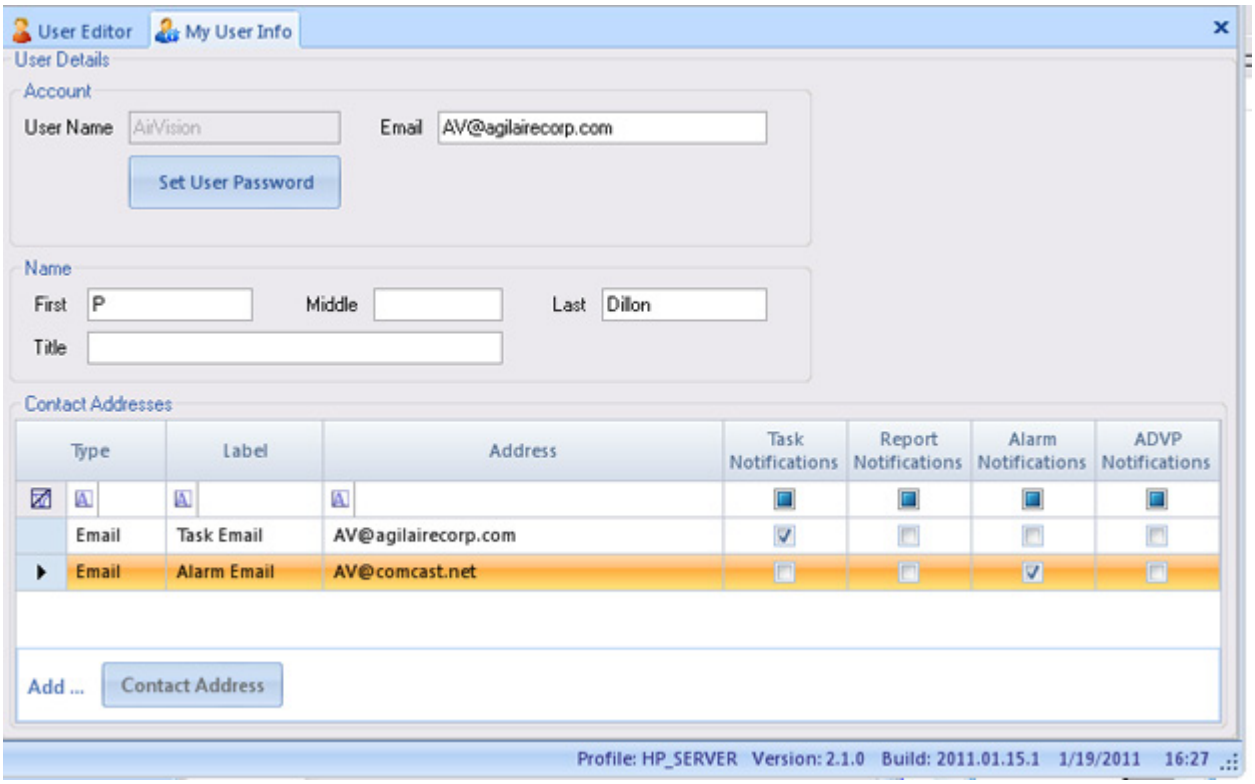


User Editor from Configuration Editors > Security > User Editor

My User Settings

Non-administrative personnel can change their own Password, Email, and Name, but not their User Name in the **My User Settings** screen in **Configuration Editors** > **Security**. If a User Name needs to be changed (for example, if a name is misspelled), an Administrator would have to delete the original User Name and add a new one.

In the **Contact Addresses** section of the screen you can click **Add Contact Addresses** and enter multiple email addresses for the same user to receive different notifications at different email addresses. Check the notifications to be emailed to each email address: Task, Report, Alarm, or ADVP. Each **Label** must have a different name or the database will not accept it. Click **Save**.

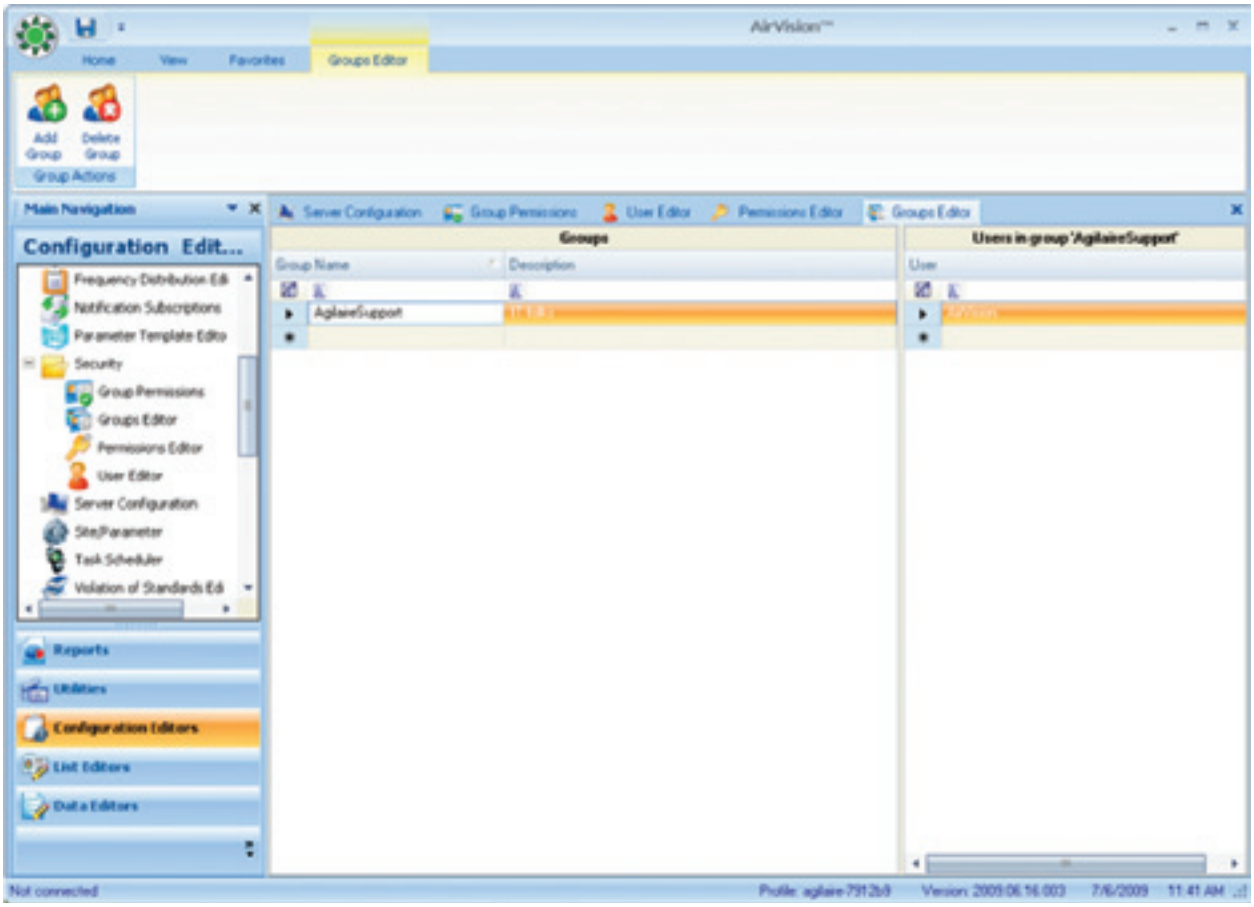


My User Settings screen in Configuration Editors > Security

Groups Editor

Next, create or modify groups with the **Groups Editor**. To add or delete groups, click the **Add Group** or **Delete Group** button. Select a group and add Users to that group as members of an existing or newly created group. To add a user, click on the asterisk (*) line in the right (gray) area to get a pick list of currently created users.

Click **Save**.



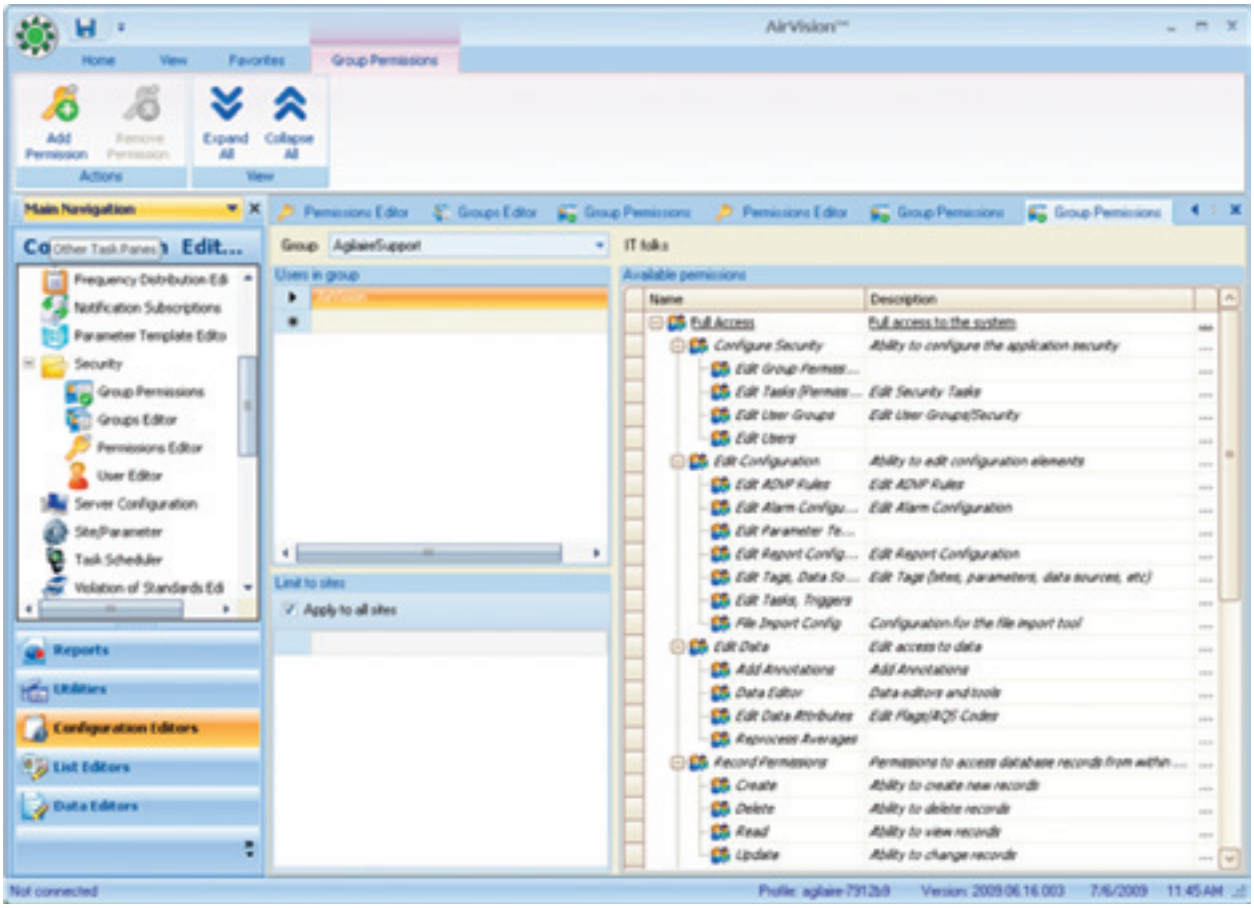
Groups Editor from Configuration Editors > Security > User Editor

Group Permissions

Finally, define the permissions for each **User Group** using the **Configuration Editors** > **Security** > **Group Permissions Editor**. Select a Group in the drop-down list. The list of configured users is displayed (and users can be added here as well). The right panel shows the various rights available in the system, and the status for the current group:

- Grayed = access disabled
- Black, underlined = access enabled
- Black, italic = access enabled by inheriting from another granted access.

In this example, access has been granted to certain Security permissions (Groups, Users, and User Groups, but not Edit Tasks). Access is granted to all configuration items at the topmost level, and all sub-tasks are permitted by inheritance. For example, to turn off Edit ADVP Rules, first remove the overall Edit Configurations permission and then add the individual permissions that we need. Expand and Collapse the tree using the buttons on the ribbon. To define a group as having site-specific access, uncheck the **Apply to All Sites** in the lower left panel, and then add sites using the list form below.



Group Permissions from Configuration Editors > Security > Group Permissions Editor

GSI Driver Editor

The purpose of the GSI Driver Editor (**Editors>GSI Driver Editor**) is to provide a way to add, delete, or modify GSI driver entries in an editor similar to the Parameter Template editor for GSI entries and GSI instruments.

The GSI Driver Editor consists of an alphabetized pick-list of existing GSI entries for modification. Two editors may be required, one for instruments and one for entries, or two sections/tabs of the forms.

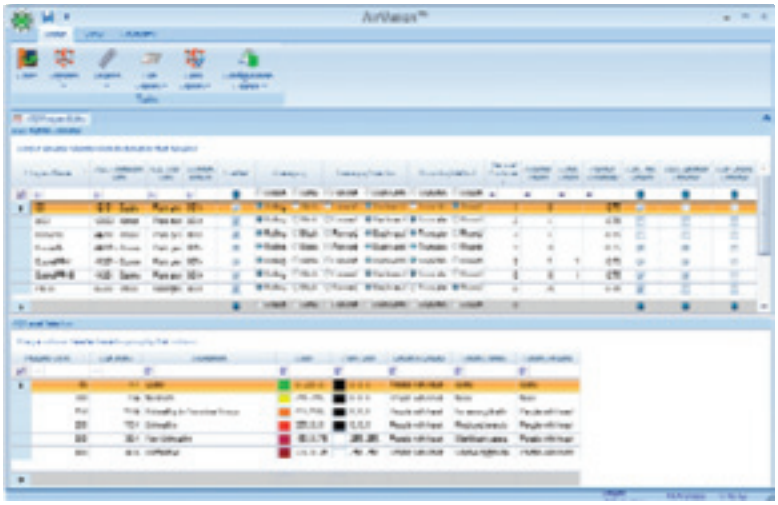
Fields in the GSI Driver Entry tab include:

- GSI Entry
  - Associated GSI Instrument and GSI Entry (pick-list of configured instruments)
  - Send Name (string)
  - Parse Name (string, up to 8 char)
  - AutoSend String (string up to 8 char)
  - Autosend Repeat Interval (1.60 seconds)
  - Parse Sync String
  - Modbus Register
  - Fixed or Delimited Parsing
    - Fixed:
      - Number of Chars to Data (int, up to 3 digits)
      - Data Field Width (int, up to 2 digits)
      - Number of Chars in string (int, up to 3 digits)
    - Delimited:
      - Number of Delimiter Chars (string)
      - Number of Delimiters of Delimiters to Data (int, up to 3 digits)
      - Number of Delimiters In String (int, up to 3 digits)
      - Data Field Type (pick-list- Hex, Binary, Float)
- In the GSI Driver Instrument tab:
  - GSI Instrument Name
  - Default TCP Port (integer, up to 6 digits)
  - Default Modbus Code (integer, 0-255)
  - Default Modbus Command Type (3 or 4)

Please refer to the ESC Model 8832 Data Logger Manual for more information about GSI drivers and the definitions of these fields.

AQI Program Editor

The AQI Program Editor is accessed via the Configuration menu. The **AQI Program Selection** section is a table with the following columns:



AQI Program Editor from the Configuration menu

Program Name, e.g., CO, NO2, ozone8h

Parameter Type, e.g., 44201--ozone, 42602--nitrogen dioxide

AQS Unit Type, e.g., parts per billion, micrograms/cubic meter

Average Interval, e.g., 001h (hourly)

Enabled--check to enable the AQI program in the row

Averaging type, rolling or block, only relevant if the average period is >1.

Averaging Direction, forward or backward, only relevant if the average period is >1.

Rounding Method, truncate or round

Decimal Positioner, number of places to the right of the decimal

Average Period, e.g., 8 hours, 24 hours

Scale Factor is the factor by which the reading of an instrument should be multiplied to give the true final value, for example, if you need to apply a multiplication factor to data for PPM to PPB conversion before comparing against break points. Alternately, the pollutant levels can be defined within a program to match the units.

Percent Availability--percentage of valid data points required during the rolling average duration to mark the rolling average as valid

Use Zero Scaling--if selected, defines that a zero concentration value equals an AQI value of zero.

Use Surrogate Forecast--an estimation method that uses a combination of hourly particle concentrations from previous hours to estimate the Mid-24 average.

Use Conroy Forecast--Computed 24 hr. average using surrogate model developed by Dave Conroy.

To add AQI program, click the asterisk at the bottom of the screen and enter values for an additional row. To cancel adding a program press the Tab key or the Escape key.

Each column in the table has a button that allows you to search for a row under that heading and a button to clear all filter criteria. You can change the column order by dragging the headings to a different place. You can drag a column heading above the table to change the way the information is grouped.

The **AQI Level Selection** section is a table with the following columns:

Pollutant Level--the upper limit on an AQI value for a particular group

Sub Index--the actual data value in units

Description and color--defaults to Good (green), Moderate (yellow), Unhealthy for Sensitive Groups (orange), Unhealthy (red), Very Unhealthy (purple), and Hazardous (maroon)

Font Color--color for text (used in AgileWeb site)

Sensitive Groups and Health Effects--describes people who are most sensitive to this level of pollution and the possible health results.

Health Advisory--advise for people at risk for this level of pollution

To add a pollutant level, click the asterisk at the bottom of the screen and enter values for an additional row. To cancel the addition, press the Tab key or the Escape key.

Each column in the table has a button that allows you to search for a row under that heading and a button to clear all filter criteria. You can change the column order by dragging the headings to a different place. You can drag a column heading above the table to change the way the information is grouped.

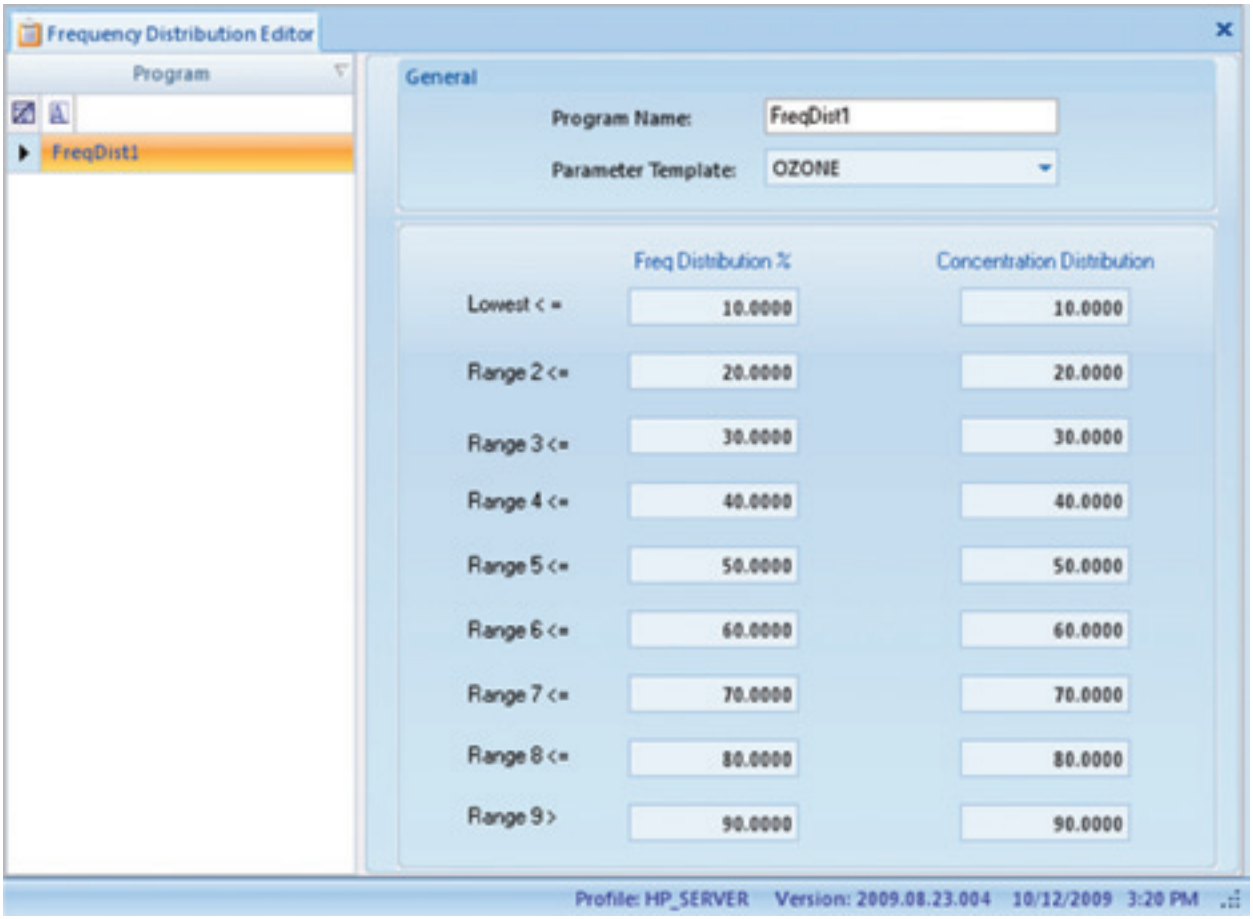
Configuring Reports

The following reports require configuration to run:

- AIRNow Report (**Configuration Editors > Report Configuration >AIRNow/FTP Setup**)
- **AQI Report** (**Configuration Editors > Report Configuration >AQI Program Editor**)
- Frequency Distribution Report (**Configuration Editors > Report Configuration > Frequency Distribution Editor**)
- Concentration Distribution Report (**Configuration Editors > Report Configuration > Frequency Distribution Editor**)
- Violation of Standards Report (**Configuration Editors > Report Configuration > Violation of Standards Editor**)
- Wind Rose (**Configuration Editors > Report Configuration > Wind Rose Levels Editor**).

Frequency Distribution and Concentration Distribution Editor

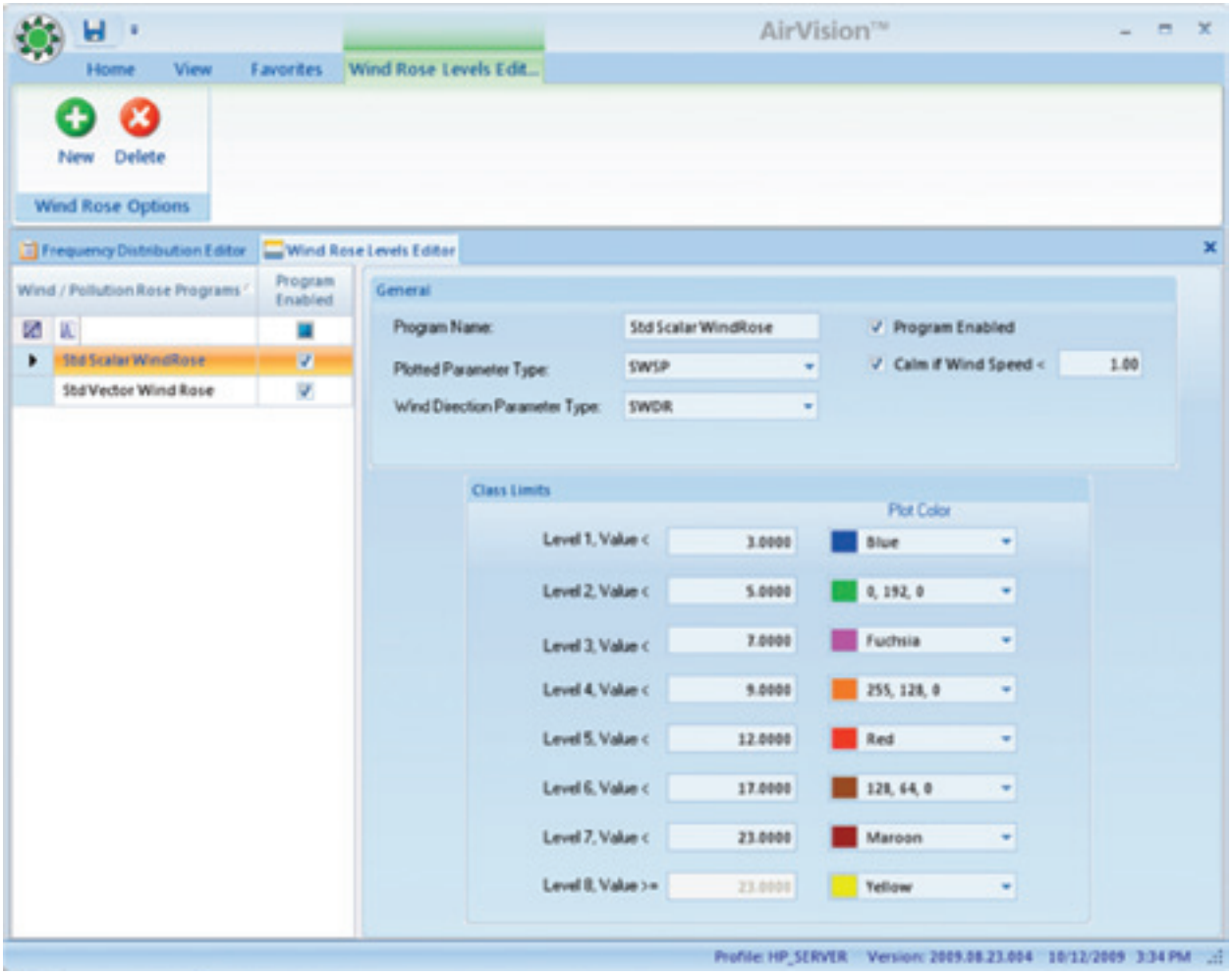
Frequency and Concentration Distribution Reports are configured in the same editor (**Configuration Editors** > **Frequency Distribution Editor**). You define the concentration values and statistical percentages to display in the report, with one definition entry for each Parameter Template.



Frequency and Concentration Distribution Report Editor from Configuration Editors > Frequency Distribution Report

Wind Rose Levels Editor

In the Wind Rose Levels Editor (**Configuration Editors** > **Wind Rose Levels Editor**) you can designate the magnitude of wind speed values and pollutant concentrations for each color and width in the rose. You can create a profile for each combination of a wind direction type (scalar or vector) wind speed, or pollutant, via the designation of Parameter Templates. This report profile applies to all sites.

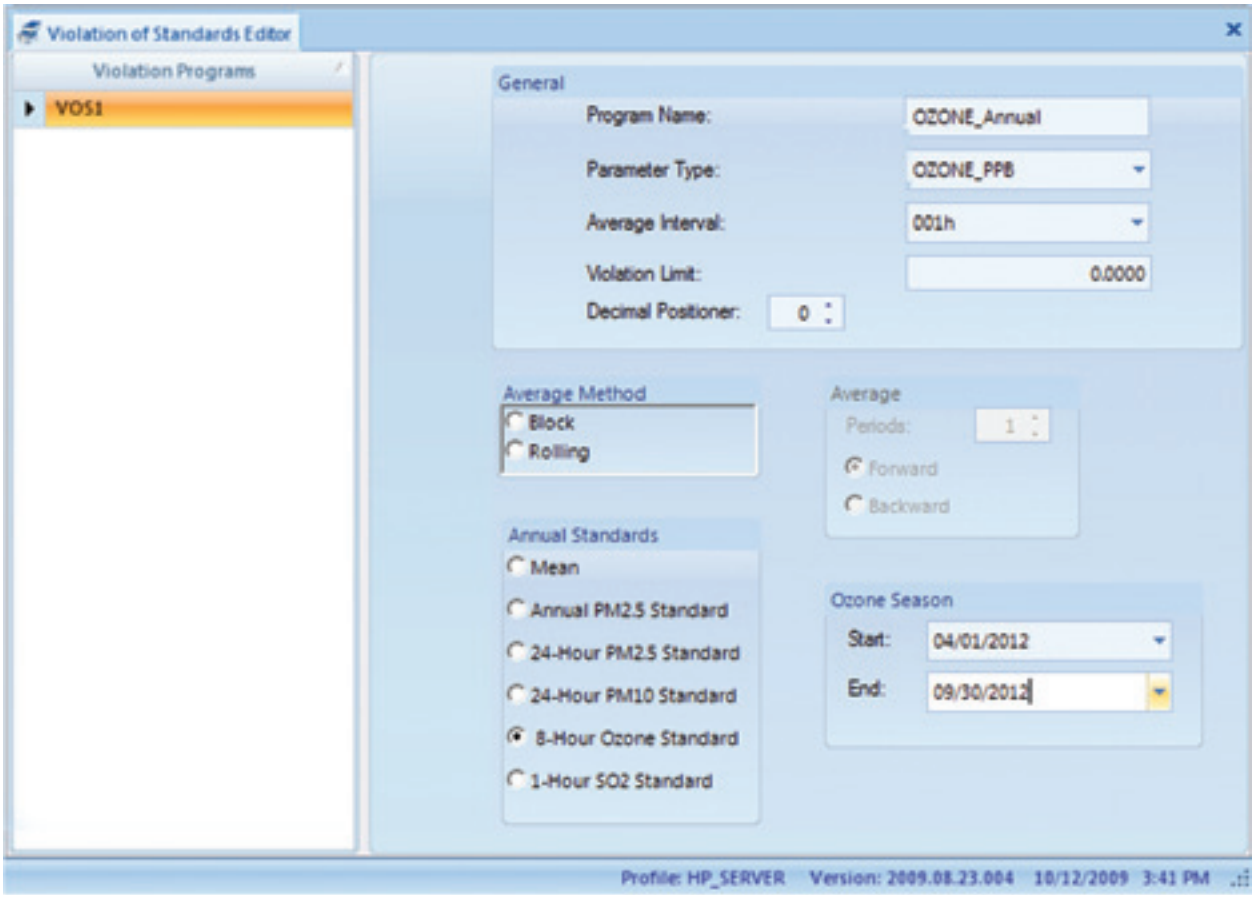


Configuring Wind/Pollution Rose Reports in Configuration Editors > Wind Rose Levels Editor

Violation of Standards Editor

In the Violation of Standards Editor (**Configuration Editors** > **Violation of Standards Editor**, 87), you can designate the calculation method, averaging method, and limit for any parameter template. The limits can be single averages, rolling averages, block averages, or you can choose from several standard USEPA annual and multi-year defined calculations.

For the 8-hour ozone standard, you should also designate the start and end of ozone season (or select Jan 1 – Dec 31 for year-round reporting).



Violation of Standards Editor from Configuration Editors > Violation of Standards Editor

DONE
report list needs updated, Calibration Report should be removed from the list of configuration reports

Chapter 3

Reports

Reports that are missing:
8 Hour Rolling Average,
Average Data Graph,
AQI Monthly,
Calibration X Bar R,
Data with Flags,
Historical Log Viewer,
Asset reports,
Network Data Recovery

Should Leak Check and Multi Phase Cal reports be added?
Should reports in the manual be re-ordered to match the order in the clientmenu?

After data has been polled, either by a scheduled task (**Configuration Editor>Task Scheduler**) or manually (**Utilities>Manual Poll** or **Utilities >Manual Instrument Poll**) AirVision can be run by selecting a report from the **Reports** menu.

▶ **Note:** You can now add your logo to the top of Daily Summary and Monthly reports. Open the **Server directory** in the **Program directory** where AirVision is installed (typically C:\Program Files\Agilaire LLC\AirVision Server) and paste **logo.jpg** into the Server Directory (C:\Program Files\Agilaire LLC\AirVision Server\logo.jpg).

The Reports menu lists reports in alphabetical order with related reports grouped in folders.

- AIRNow CSV Text Report (AQSCSV Report)
- AIRNow Report
- Annotations Report

AQI Reports

- AQI Report--Current
- AQI Report--Range
- AQI Report--Standard
- Voice AQI Report

- AQS Text Report
- AQS XML Report
- AQS Reports
- Audit Trail Report
- Calibration Results
- Calibration Trend Graph

Configuration Reports

- Calibration Configuration
- Channel Configuration
- Parameter Configuration
- Scheduled Tasks Report
- Site Configuration Report

- Daily Parameter Report
- Daily Summary Report

Chapter 3

Reports

Sample Data Reports sub folder and contents needs added- (please indicate where-K)

Internal Reports

- DB Modification History
- Exception Journal
- Journal Message Log
- Software Version Report
- Table Size Information

- LogBook Report

Logger Reports

- Alarm Journal
- Central Messages
- Input Line Status Report
- Power Failure Report

Met Reports

- Joint Frequency Distribution Report
- Meteorological Report
- Wind/Pollution Rose

- Monthly Report
- Monthly Sample Data Report

PARS Reports

- Accuracy Report
- Precision Report

- SCAQMD 1m Data Export
- Site Health Report

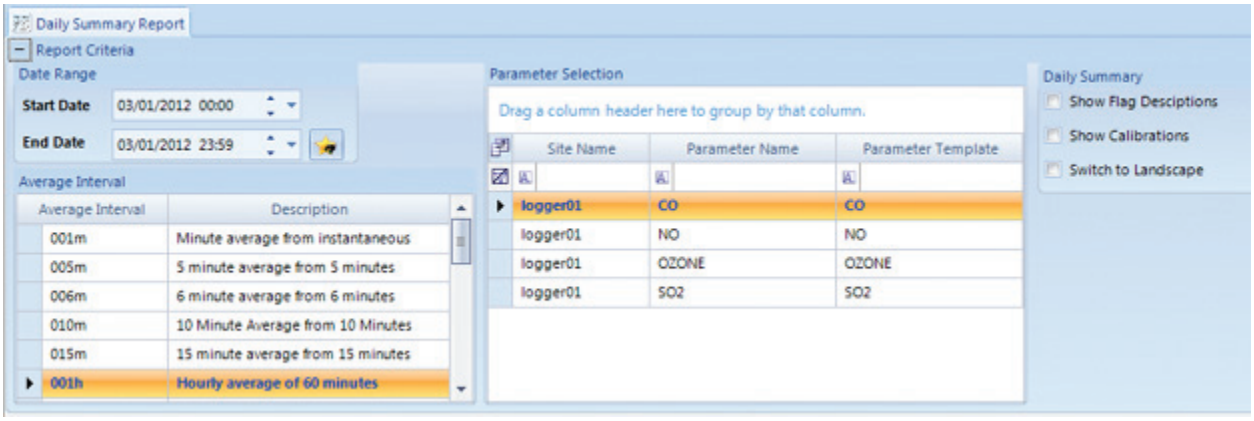
Statistical Reports

- Concentration Distribution Report
- Data Analysis
- Data Recovery Report
- Frequency Distribution
- Maximum Hourly Values Report
- Statistical Report

- Violation of Standards Report

Criteria Pane

All reports use a Criteria Pane to select a time range and list of pollutants for the report.



Report Criteria pane in Reports > Daily Summary Report

You can select the **Date Range** any of the following ways:

- Manually type in a month, day, year, and time.
- Click in a date field (the month, date, year, hour, minute) and click the small up or down arrow keys to raise or lower that field (month, day, year, hour, minute). (It isn't necessary to highlight the field, just put the cursor in it.)
- Use the bigger down arrow control to bring up a **Calendar.** You can click the arrows to change the month, or click the name of the month or year to bring up a list.
- Use the **Star** button to select from a pre-defined date range:

  Current Day
  Yesterday
  Current Week
  Last Week
  Current Month
  Last Month
  Current Quarter
  Last Quarter
  Current Year
  Number of days back from current day

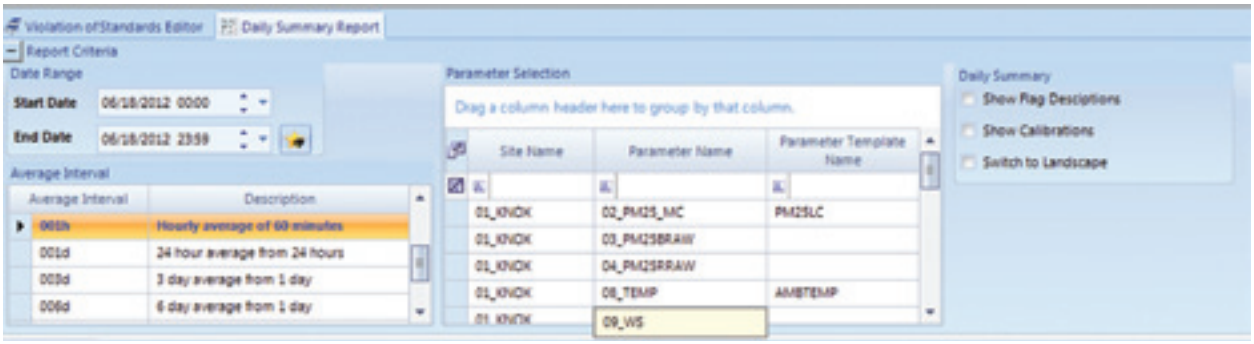
In addition, the time criteria (e.g., the star icon button) allows you to choose "shift forward one day" or "shift backward one day." If you select one of these and hit apply, it acts similar to the "Data Forward" or "Data Backward" buttons, except always shifting by 24 hours, rather than the size of the data window. This is useful for reviewing calibration minute data for several days, where the calibration falls on the same time each day.

Scroll to select an **Average Interval** (most reports only support one average interval at a time).

Click to select a site and parameter; use standard Windows Shift-Click and Control-Click conventions to select multiple parameters.

In the **Daily Summary** section, select from the following check boxes:

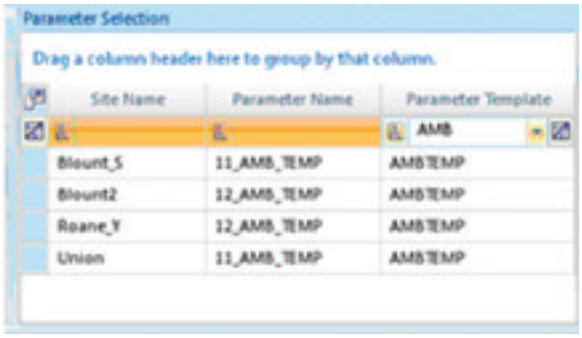
- Show Flag Descriptions
- Show Calibrations
- Switch to Landscape



Filters

Filter fields are available in the top row of each column. Click in the row to use the filter to list a single site, parameter, or parameter template.

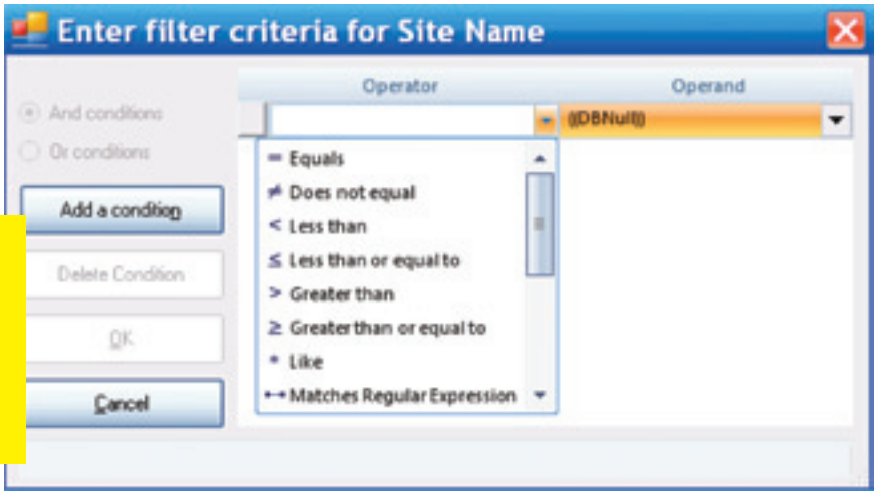
Click the down-arrow to the right of each filter field to select a particular entry in the column. Choices in the drop-down list will be Custom, Blanks, Non-blanks, plus each entry in the column (site name, parameter names, or parameter templates)



Filter fields in Reports criteria pane

To write your own criteria, select **Custom** and configure the screen that pops up.

custom filter criteria screenshot needs updated

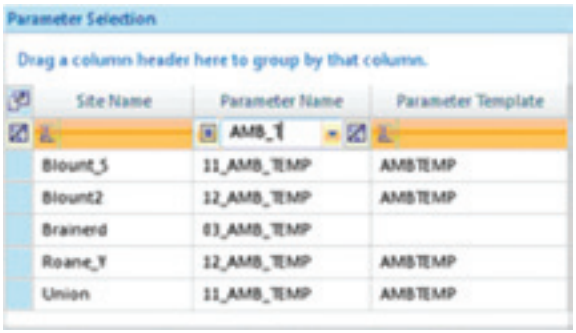


Custom filter criteria screen

Click the box with the letter **A** in the left side of each filter field to change the filter field from the default of **Starts With** to one of the following:

Equals
Does not equal
Less than
Less than or equal to
Greater than or equal to
Like
Matches Regular Expression
Starts with
Contains
Ends with
Does not start with
Does not contain
Does not end with
Does not match
Not like

For example, if you imported E-DAS data and used the option to put the channel number in front of the channel name, you might end up with some ozone channels that were "01_OZONE" while others were "03_OZONE" and "04_OZONE". Using the boxed "A" filter, you could search for all parameters names that contain ""Ozone" and more easily select them from a large list of parameters. Using a filter makes it easy to see a Parameter Template was not set for O3_AMB_TEMP.



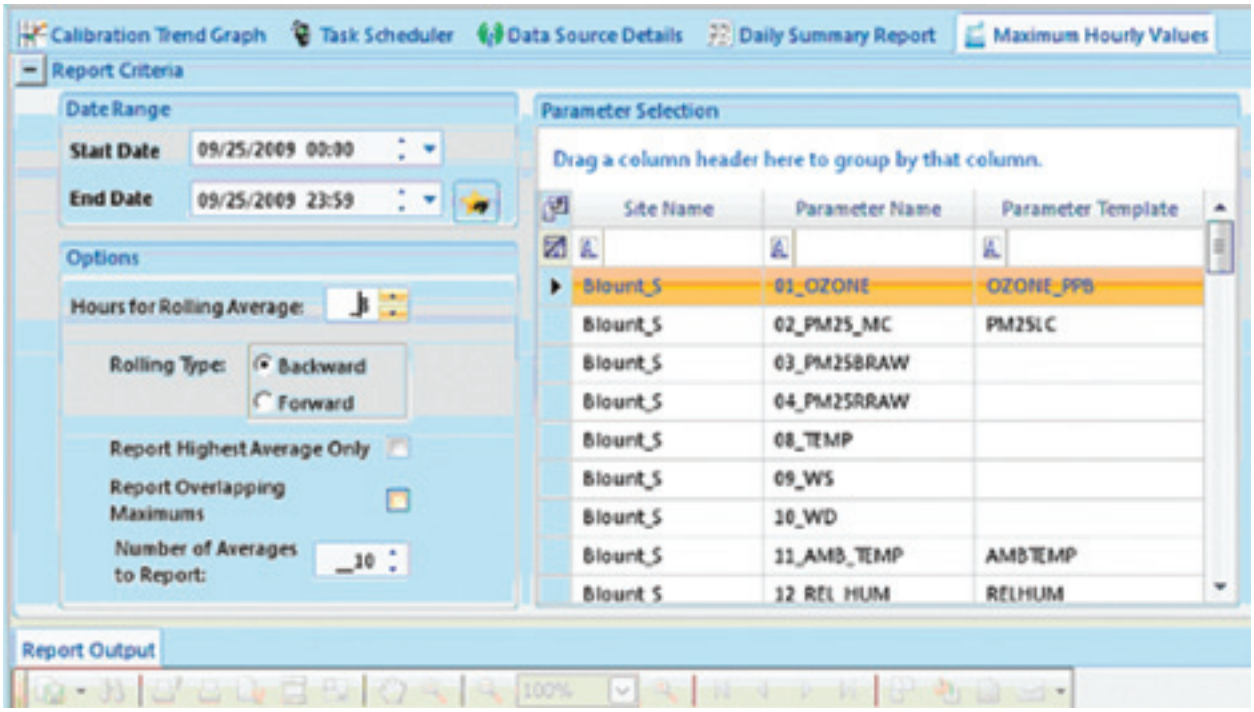
Using a filter to determine which parameters don't have a template

Additional Fields for Specific Reports

For some reports, the Criteria Panel is expanded with additional fields. For the Maximum Hourly Values report, additional information is needed on how the data in the report should be filtered and calculated:

DONE
Maximum Hourly Averages should be corrected to Maximum Hourly Values

- Rolling hours, and time-tagging type
- Report highest average only for any day
- Allow report of overlapping maximums (for multiple hour rolling averages)
- Number of maximum averages to report



Additional Report Criteria required for Maximum Hourly Values report

Other reports with additional criteria include:

- Wind / Pollution Rose requires you to designate which Wind Rose report profile to use.
- AQS/XML Report requires you to choose which kinds of records to be assembled.
- Concentration Distribution, Frequency Distribution, Monthly Reports all allow you to designate an N-hour rolling average as an option.

Annotations Report

The Annotations report may be run on any list of parameters, for any time range. It provides a summary of all annotations it finds.

To see a report of annotations made in the **Average Data Editor**, open the **Reports** menu and select **Annotations Report**. Make the usual query selections of **Start/End Date**, **Average Interval**, and **Parameter(s)**. Click the **Generate Report** icon on the ribbon.

Current Date : 9/28/2010
Current Time : 9:10 PM

Annotation Report

01-Mar-2006 00:00 to 06-Mar-2006 00:00

Site: Roane_Y
Parameter: 02_SO2

Category	User Name	Annotation Date	Date	Annotation
Instrument Failure	Admin	28-Sep-10 21:10	01-Mar-06 20:00	Lightning strike
Maintenance	New User	28-Sep-10 21:09	01-Mar-06 05:00	Replaced pump seal
Maintenance	New User	28-Sep-10 21:09	01-Mar-06 06:00	Replaced pump seal
QA Note	Fred5	28-Sep-10 21:09	01-Mar-06 09:00	Quarterly Audit
QA Note	Fred5	28-Sep-10 21:09	01-Mar-06 10:00	Quarterly Audit
QA Note	Fred5	28-Sep-10 21:09	01-Mar-06 11:00	Quarterly Audit

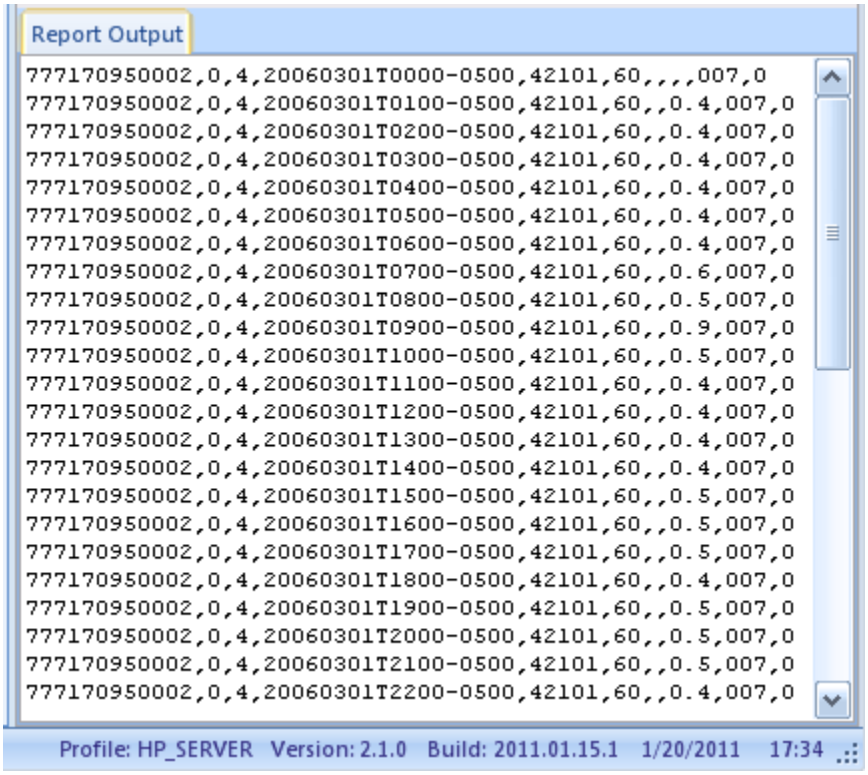
Annotations Report

AQSCSV Report (AIRNow CSV Report)

The optional AQSCV Report module supports the proposed changes for submission of data to AIRNow. The new format requires a 3-digit County Code, so that field has been added to the **System Configuration** screen in **Configuration Editors>Site/Parameter Editor**.

After all fields in the System Configuration editor have been configured, the AQSCV report can be run, scheduled, and transmitted, just like the OBS-style AIRNow report.

A **Send Now** button is provided to test the AIRNow transmission, or to send manual updates to the AIRNow server.



AQSCV Report (AIRNow CSV Report)

Configuration Reports

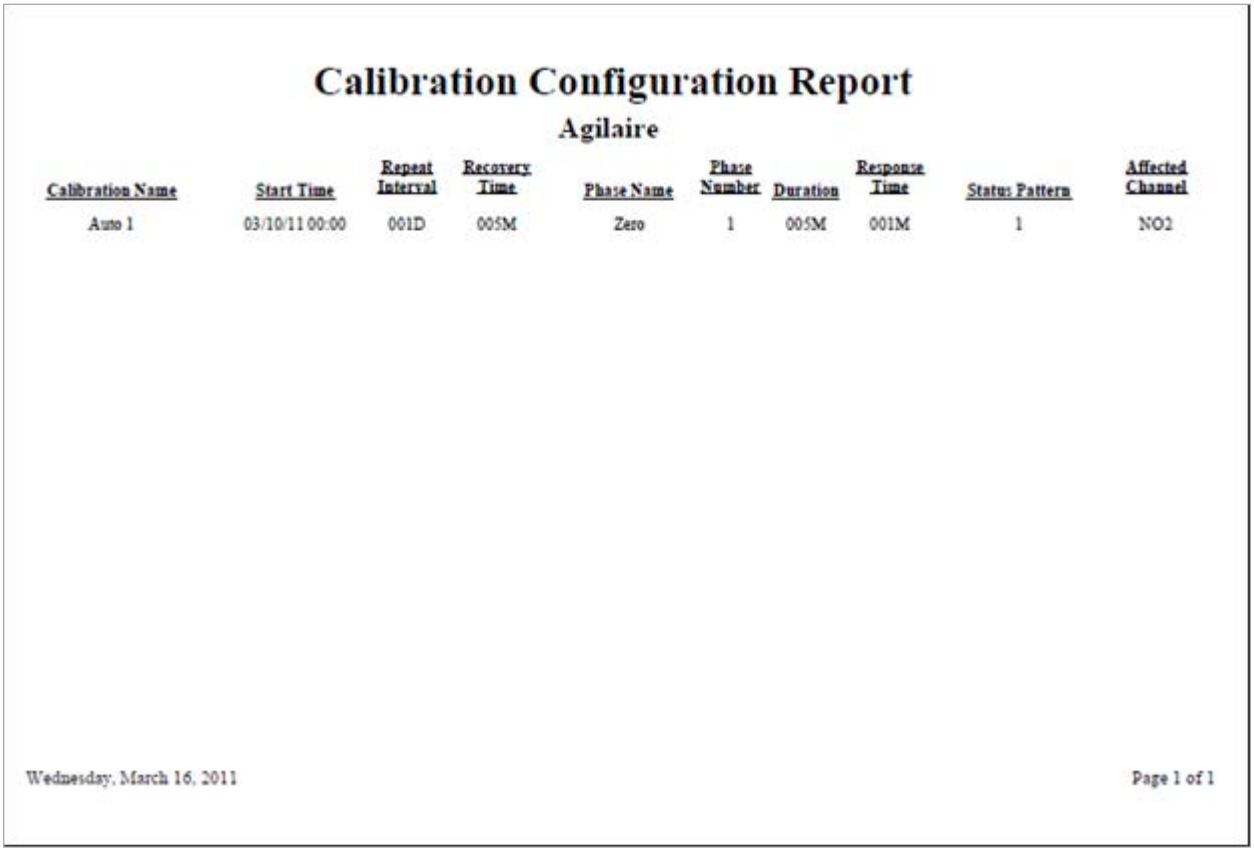
Configuration reports consist of the following:

- Calibration Configuration Report
- Channel Configuration Report
- Parameter Configuration Report
- Scheduled Tasks Reports
- Site Configuration Report

DONE
Calibration Report should be removed from the list of configuration reports

Calibration Configuration Report

To run a Calibration **Configuration Report** (**Reports > Configuration folder > Calibration Configuration Report**), select a site or sites and click the **Generate Report icon** on the Ribbon.



Calibration Configuration Report

Agilaire

Calibration Name	Start Time	Repeat Interval	Recovery Time	Phase Name	Phase Number	Duration	Response Time	Status Pattern	Affected Channel
Auto 1	03/10/11 00:00	001D	005M	Zero	1	005M	001M	1	NO2

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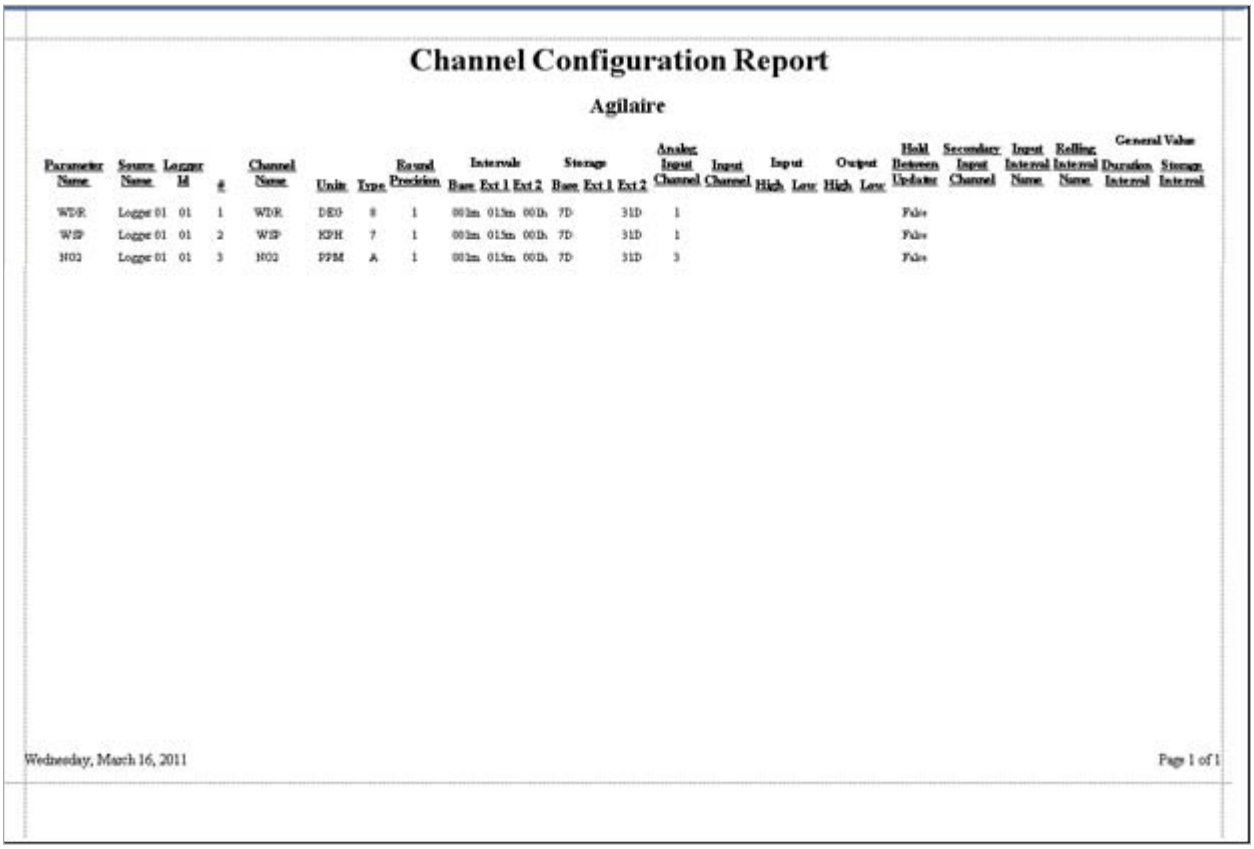
Calibration Configuration Report (Reports > Configuration folder > Calibration Configuration Report)

Channel Configuration Report

To run a Channel Configuration Report (**Reports > Configuration folder > Channel Configuration Report**), select a **Site** or Sites and a **Parameter Name** or Parameter Names. Click the **Generate Report icon** on the Ribbon.



Channel Configuration Report

Agilaire

Parameter Name	Source Name	Logger Id	#	Channel Name	Units	Type	Round Precision	Intervals Base	Intervals Ext 1	Intervals Ext 2	Storage Base	Storage Ext 1	Storage Ext 2	Analog Input Channel	Input Channel	Input High	Input Low	Output High	Output Low	Hold Between Updates	Secondary Input Channel	Input Interval Name	Rolling Interval Name	General Value Duration Interval	General Value Storage Interval
WDR	Logger 01	01	1	WDR	DEG	0	1	00:1m	01:3m	00:1h	7D		31D	1						False					
WSP	Logger 01	01	2	WSP	KPH	7	1	00:1m	01:5m	00:1h	7D		31D	1						False					
H02	Logger 01	01	3	H02	PPM	A	1	00:1m	01:5m	00:1h	7D		31D	3						False					

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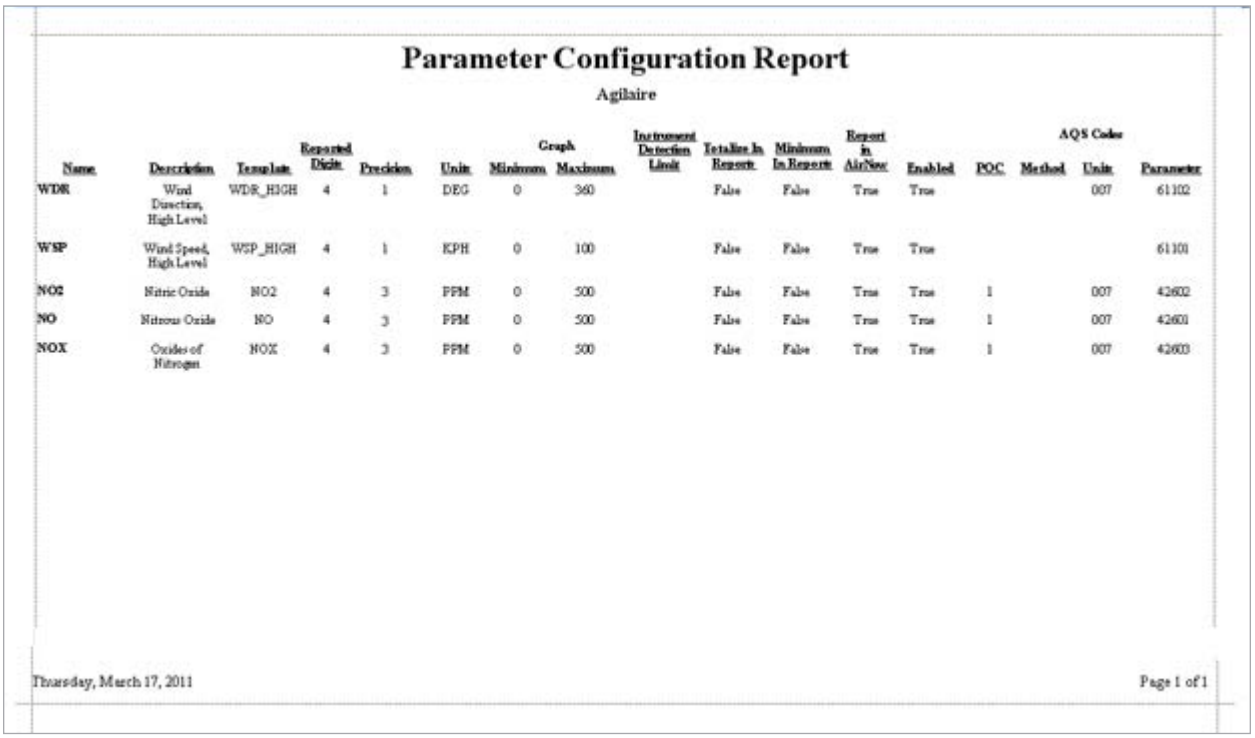
Channel Configuration Report (Reports > Configuration folder > Channel Configuration Report)

Parameter Configuration Report

To run a **Parameter Configuration Report**, (**Reports > Configuration folder > Parameter Configuration Report**), select a **Site** or Sites and a **Parameter Name** or Parameters Names. Click the **Generate Report icon** on the Ribbon.



Parameter Configuration Report

Agilaire

Name	Description	Template	Reported Digits	Precision	Unit	Graph Minimum	Graph Maximum	Instrument Detection Limit	Totalize In Reports	Minimum In Reports	Report in AirNow	Enabled	AQS Code POC	AQS Code Method	AQS Code Unit	AQS Code Parameter
WDR	Wind Direction, High Level	WDR_HIGH	4	1	DEG	0	360		False	False	True	True			007	61102
WSP	Wind Speed, High Level	WSP_HIGH	4	1	KPH	0	100		False	False	True	True				61101
NO2	Nitric Oxide	NO2	4	3	PPM	0	500		False	False	True	True	1		007	42602
NO	Nitrous Oxide	NO	4	3	PPM	0	500		False	False	True	True	1		007	42601
NOX	Oxides of Nitrogen	NOX	4	3	PPM	0	500		False	False	True	True	1		007	42603

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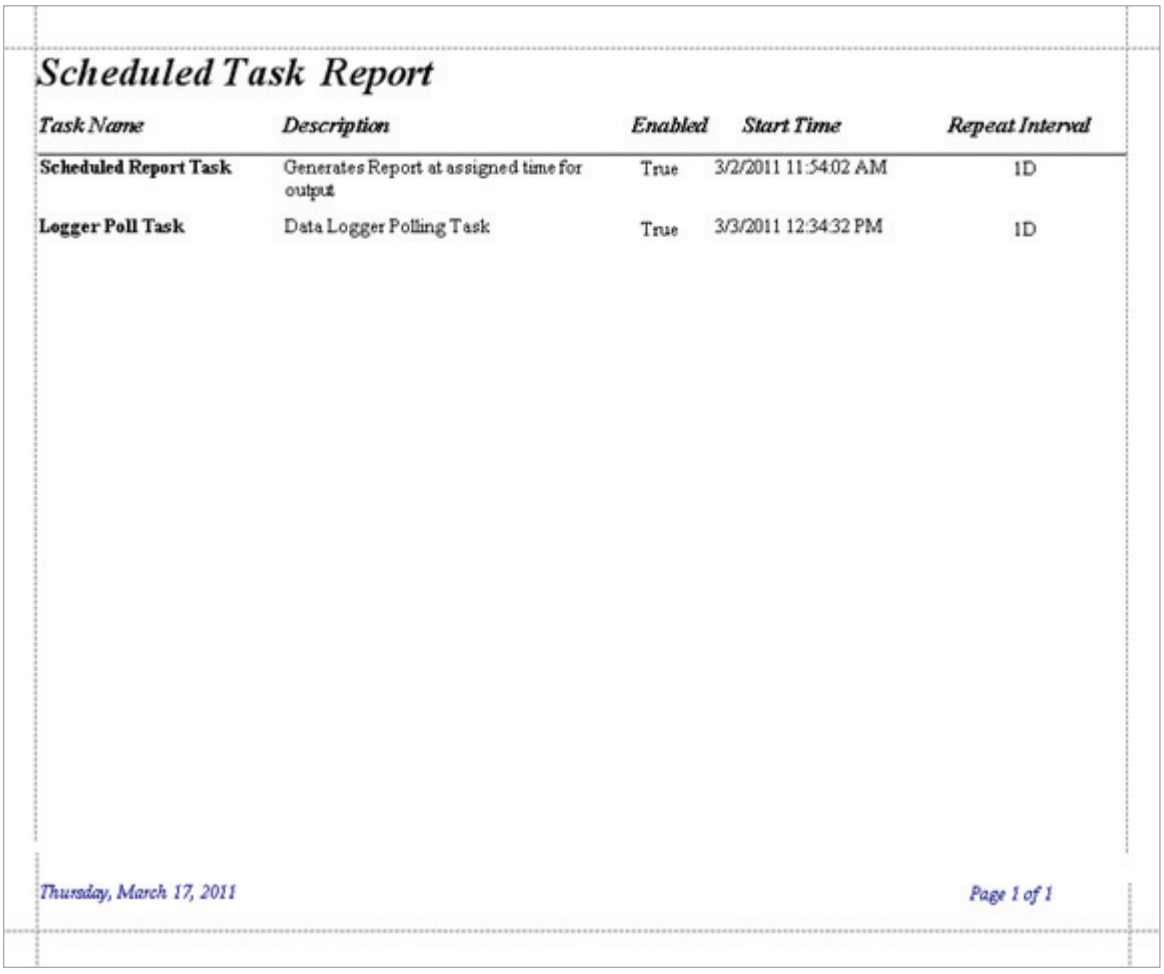
Parameter Configuration Report, (Reports > Configuration folder > Parameter Configuration Report)

Scheduled Tasks Report

To run a **Scheduled Tasks Report**, open **Reports > Configuration folder > Scheduled Tasks Report** and the report will be displayed automatically. No query is necessary.



Scheduled Task Report

Task Name	*Description*	*Enabled*	*Start Time*	*Repeat Interval*
Scheduled Report Task	Generates Report at assigned time for output	True	3/2/2011 11:54:02 AM	1D
Logger Poll Task	Data Logger Polling Task	True	3/3/2011 12:34:32 PM	1D

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Scheduled Task Report (Reports > Configuration folder > Scheduled Tasks Report)

Site Configuration Report

To run a **Site Configuration Report**, (**Reports > Configuration folder > Site Configuration Report**), select a **Site** or Sites and click the **Generate Report icon** on the Ribbon.

Site Configuration Report

Agilaire:

Description:	main site
Abbreviation:	01
Address:	2904-B
City:	Knoxville
County:	Knox
Zip Code:	37918

Latitude:	35.9605
Longitude:	-83.9208
Time Zone:	EST
Agency Code:	0581
State Code:	47
CountyCode:	093
Site Code:	

Thursday, March 17, 2011 *Page 1 of 1*

Site Configuration Report, (Reports > Configuration folder > Site Configuration Report)

Routine Reports

Daily Summary Report

The Daily Summary Report is usually for the daily summary of hourly data for all parameters at a site or sites, but it can also be used to report any time range or average interval. Statistics (average, maximum, minimum, and count) are at the bottom of each column. If **Totalize in Reports** is selected in the Parameter configuration, a **Total** will be displayed in the **Daily Summary Report**.

Current Time: 1:38 PM

Daily Summary Report

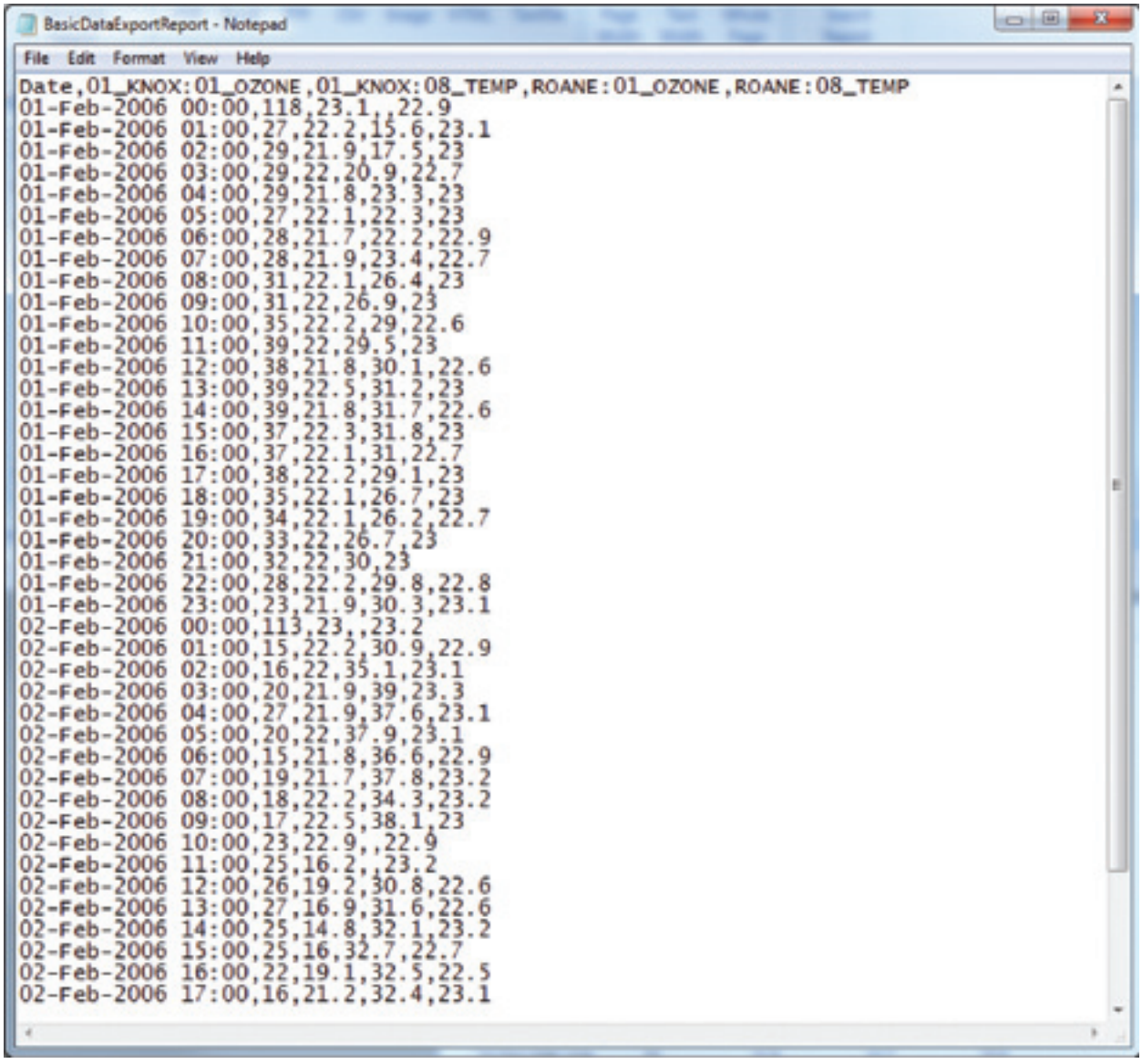
Site: logger01 3/1/2012 Interval: 001h

	CO	NO	OZONE	SO2
Hour	PPM	PPM	PPM	PPM
00:00	1.19	4.528	150.000	8.595
01:00	1.19	4.535	150.000	8.597
02:00	1.19	4.543	150.000	8.598
03:00	1.19	4.553	150.000	8.599
04:00	1.19	4.561	150.000	8.601
05:00	<	4.570	150.000	8.602
06:00	1.20	4.584	150.000	8.606
07:00	1.20	4.604	150.000	8.612
08:00	1.20	4.622	150.000	8.619
09:00	1.20	4.614	150.000	8.616
10:00	1.20	4.594	150.000	8.609
11:00	1.20	4.601	150.000	8.612
12:00	1.19	4.569	150.000	8.602
Avg	1.19	4.575	150	8.605
Max	1.20	4.622	150.000	8.619
Min	1.19	4.528	150.000	8.595
Count	12	13	13	13
Total	14.34	59.478	1950	111.868

Daily Summary Report with Total

Basic Data Export Report

This report is much like the Daily Summary Report, but allows for unlimited number of sites/parameters as columns, and any number of averages as rows, without page breaks or summary data. It is ideally suited for CSV export via the task scheduler to disk or FTP, for automating data export to legacy systems, web sites, etc. In this report, invalid data is represented as an empty value.


BasicDataExportReport - Notepad

File Edit Format View Help

```
Date,01_KNOX:01_OZONE,01_KNOX:08_TEMP,ROANE:01_OZONE,ROANE:08_TEMP
01-Feb-2006 00:00,118,23.1,,22.9
01-Feb-2006 01:00,27,22.2,15.6,23.1
01-Feb-2006 02:00,29,21.9,17.5,23
01-Feb-2006 03:00,29,22,20.9,22.7
01-Feb-2006 04:00,29,21.8,23.3,23
01-Feb-2006 05:00,27,22.1,22.3,23
01-Feb-2006 06:00,28,21.7,22.2,22.9
01-Feb-2006 07:00,28,21.9,23.4,22.7
01-Feb-2006 08:00,31,22.1,26.4,23
01-Feb-2006 09:00,31,22,26.9,23
01-Feb-2006 10:00,35,22.2,29,22.6
01-Feb-2006 11:00,39,22,29.5,23
01-Feb-2006 12:00,38,21.8,30.1,22.6
01-Feb-2006 13:00,39,22.5,31.2,23
01-Feb-2006 14:00,39,21.8,31.7,22.6
01-Feb-2006 15:00,37,22.3,31.8,23
01-Feb-2006 16:00,37,22.1,31,22.7
01-Feb-2006 17:00,38,22.2,29.1,23
01-Feb-2006 18:00,35,22.1,26.7,23
01-Feb-2006 19:00,34,22.1,26.2,22.7
01-Feb-2006 20:00,33,22,26.7,23
01-Feb-2006 21:00,32,22,30,23
01-Feb-2006 22:00,28,22.2,29.8,22.8
01-Feb-2006 23:00,23,21.9,30.3,23.1
02-Feb-2006 00:00,113,23,,23.2
02-Feb-2006 01:00,15,22.2,30.9,22.9
02-Feb-2006 02:00,16,22,35.1,23.1
02-Feb-2006 03:00,20,21.9,39,23.3
02-Feb-2006 04:00,27,21.9,37.6,23.1
02-Feb-2006 05:00,20,22,37.9,23.1
02-Feb-2006 06:00,15,21.8,36.6,22.9
02-Feb-2006 07:00,19,21.7,37.8,23.2
02-Feb-2006 08:00,18,22.2,34.3,23.2
02-Feb-2006 09:00,17,22.5,38.1,23
02-Feb-2006 10:00,23,22.9,,22.9
02-Feb-2006 11:00,25,16.2,,23.2
02-Feb-2006 12:00,26,19.2,30.8,22.6
02-Feb-2006 13:00,27,16.9,31.6,22.6
02-Feb-2006 14:00,25,14.8,32.1,23.2
02-Feb-2006 15:00,25,16,32.7,22.7
02-Feb-2006 16:00,22,19.1,32.5,22.5
02-Feb-2006 17:00,16,21.2,32.4,23.1
```

24-Hour Averages Summary Report

The 24-Hour Averages Report provides a report of 24-hour averages, one month per page. This report assumes that:

- either the data logger is storing and is polled for '1d' averages,
- or that the **Data Rollup Utility** is used to create 24 hour averages from hourly data. The 24-Hour Averages Summary Report is for average data only.

24 Hour Average Summary Report

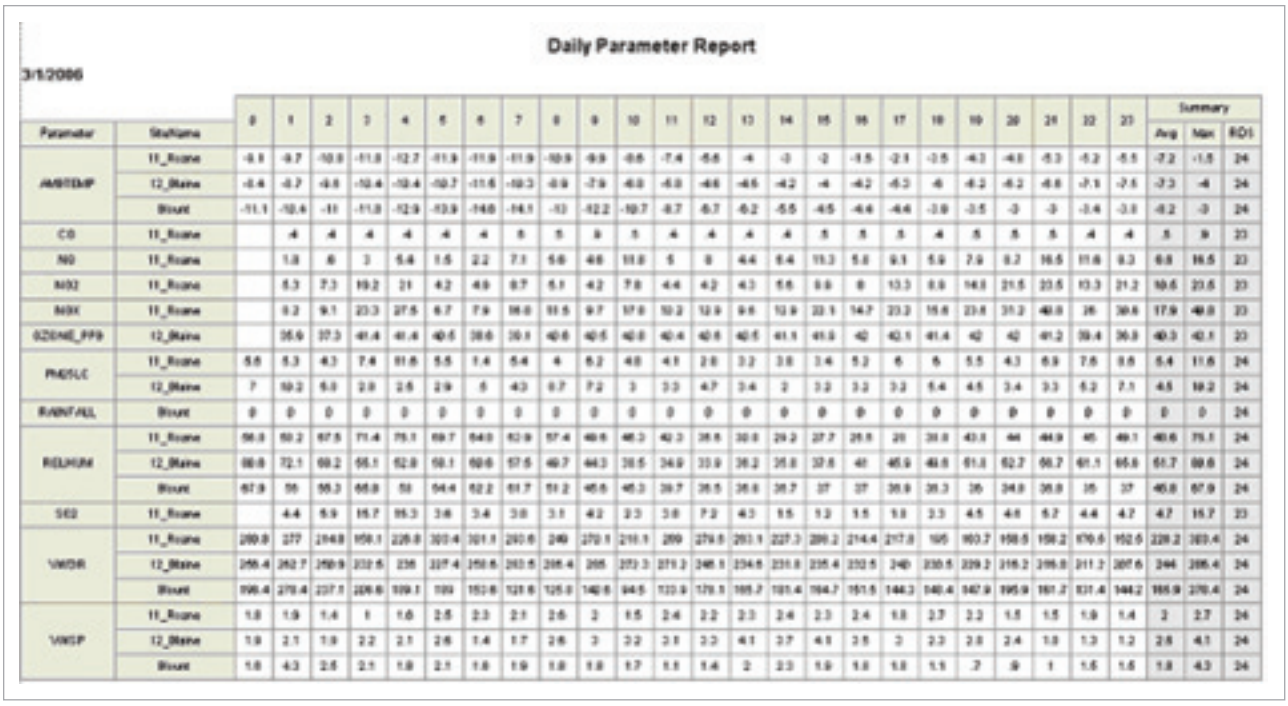
February 2006

	01_KNOX		BLOUNT3	OAKRIDGE
	02_PM25_MC	PM_TEOM	06_PM25_MC	06_PM25_MC
Day	UG/M3	PPB	UG/M3	UG/M3
01	5.8	29	13.1	10.1
02	14.5 P	20 P	12.3	14.6
03	12.3 D	34 M	11.8	9.8 W
04	8.5	32	11.5	9.8 W
05	6.1	28	5.9 W	3.9 W
06	<	36	.3 W	3.4 W
07	<	35	1.6 W	4.3 W
08	<	32	1.0 W	6.8
09	<	31 M	2.6 W	11.3 P
10	<	36	<	13.4
11	9.4	32	6.3 W	15.6
12	7.0	38	10.8	12.8
13	10.4	32	4.8 W	13.0
14	14.8	28	12.5	16.0
15	18.6	25	16.1	22.0
16	21.2	31	11.1 >	23.7
17	<	43 P	9.8 W	12.3 W
18	69.0	39	<	4.3 W
19	4.8	35	<	8.6
20	10.3	32	6.4 ?	9.9
21	19.9 M	23 M	13.7	18.1
22	20.3 M	27	13.0 P	23.0
23	29.4	11 M	26.1	33.6
24	7.6	39	5.2	8.7 V
25	8.9	32	3.5 W	15.3
26	4.1	38	.6 W	7.5
27	1.8	36	<	6.6 W
28	5.6	0	.0 M	13.3 V
Avg	14.1	30	8.3	12.5
Max	69.0	43	26.1	33.6
Min	1.8	0	.0	3.4
Count	22	28	24	28

Daily Parameter Report

The Daily Parameter Report shows a single day summary for the entire monitoring network, grouping parameters together by the Parameter Template, but showing all sites sharing that parameter template.

Parameters that do not have a parameter template designated are not reported.



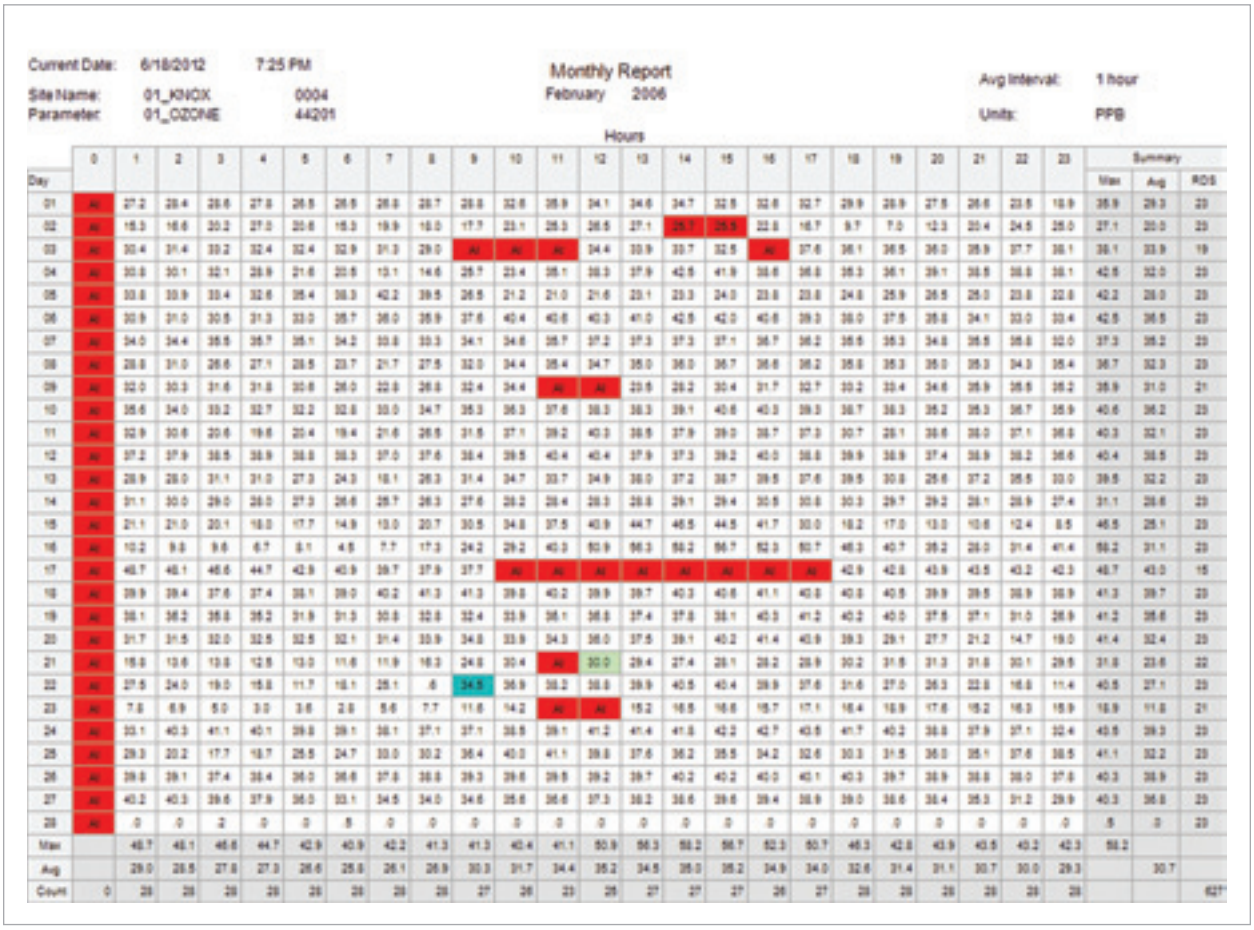
Daily Parameter Report

3/1/2006

Parameter	SiteName	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Summary		
																										Avg	Min	RDI
AMBTEMP	11_Roane	-9.9	-9.7	-10.0	-11.0	-12.7	-11.9	-11.9	-11.9	-10.9	-9.9	-9.6	-7.4	-5.6	-4	-3	-2	-1.5	-2.1	-2.5	-4.3	-4.8	-5.3	-5.2	-5.1	-7.2	-11.8	24
	12_Blaine	-8.4	-8.7	-9.8	-10.4	-10.4	-10.7	-11.6	-10.3	-8.9	-7.9	-6.8	-5.8	-4.6	-4.5	-4.2	-4	-4.2	-5.3	-6	-6.2	-6.2	-6.8	-7.1	-7.5	-7.3	-4	24
	Blount	-11.1	-10.4	-11	-11.3	-12.9	-13.9	-14.8	-14.1	-13	-12.2	-10.7	-8.7	-6.7	-6.2	-5.5	-4.5	-4.4	-4.4	-3.8	-3.5	-3	-3	-3.4	-3.8	-8.2	-3	24
CO	11_Roane		.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.4	.4	.4	.4	.5	.5	.5	.4	.5	.5	.5	.4	.4	.5	.9	23
NO	11_Roane		1.8	.6	3	5.4	1.5	2.2	7.1	5.6	4.6	11.8	5	.9	4.4	6.4	11.3	5.8	9.1	5.9	7.9	8.2	16.5	11.6	9.3	6.8	16.5	23
NO2	11_Roane		5.3	7.3	19.2	21	4.2	4.9	9.7	5.1	4.2	7.8	4.4	4.2	4.3	5.6	5.9	9	13.3	5.9	14.8	21.5	23.5	13.3	21.2	10.6	23.6	23
NOX	11_Roane		5.2	9.1	23.3	27.5	5.7	7.9	16.8	11.5	9.7	17.9	10.2	12.9	9.6	12.9	22.1	14.7	23.3	15.8	23.8	31.2	40.8	26	39.6	17.9	40.8	23
OZONE_PPB	12_Blaine		35.9	37.3	41.4	41.4	40.6	38.6	39.1	40.6	40.6	40.8	40.4	40.8	40.6	41.1	41.9	42	42.1	41.4	42	42	41.2	39.4	36.8	40.3	42.1	23
PM25LC	11_Roane	5.8	5.3	4.3	7.4	11.8	5.5	1.4	5.4	4	5.2	4.8	4.1	2.8	3.2	3.8	3.4	5.2	6	6	5.5	4.3	6.9	7.6	8.8	5.4	11.8	24
	12_Blaine	7	10.2	5.8	2.8	2.8	2.9	5	4.3	3.7	7.2	3	3.3	4.7	3.4	2	3.2	3.2	3.2	5.4	4.5	3.4	3.3	5.2	7.1	4.5	10.2	24
RAINFALL	Blount	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
RELHUM	11_Roane	56.8	60.2	67.5	71.4	75.1	69.7	64.8	62.9	57.4	48.6	46.3	42.3	35.6	32.8	29.2	27.7	28.5	28	30.8	43.8	44	44.9	45	49.1	40.6	75.1	24
	12_Blaine	68.8	72.1	69.2	66.1	62.8	58.1	62.6	57.5	49.7	44.3	38.5	34.9	33.9	36.2	35.8	37.8	40	45.9	48.8	61.8	62.7	66.7	61.1	65.8	51.7	88.8	24
	Blount	67.9	66	66.3	66.8	68	64.4	62.2	61.7	51.2	45.6	45.3	39.7	36.5	36.6	36.7	37	37	36.9	36.3	36	34.8	36.8	36	37	45.8	67.9	24
SO2	11_Roane		4.4	5.9	16.7	16.3	3.6	3.4	3.8	3.1	4.2	2.3	3.8	7.2	4.3	1.5	1.3	1.5	1.8	2.3	4.5	4.6	6.2	4.4	4.2	4.7	16.7	23
WDIR	11_Roane	280.8	277	294.8	156.1	226.8	303.4	301.1	293.6	249	270.1	216.1	269	279.6	293.1	227.3	289.2	214.4	217.8	195	160.7	158.5	158.2	170.6	152.6	228.2	303.4	24
	12_Blaine	258.4	262.7	259.9	232.6	236	227.4	250.6	263.6	266.4	265	272.3	271.2	248.1	234.6	231.8	235.4	232.5	240	230.5	229.2	216.2	206.8	211.7	207.6	244	266.4	24
	Blount	198.4	270.4	237.1	226.6	109.1	193	153.8	123.6	125.8	140.6	94.5	133.9	179.1	165.7	161.4	164.7	151.5	144.2	140.4	142.9	195.9	161.7	131.4	144.2	165.9	270.4	24
WSP	11_Roane	1.8	1.9	1.4	1	1.6	2.5	2.3	2.1	2.6	3	1.5	2.4	2.2	2.3	2.4	2.3	2.4	1.8	2.7	2.2	1.5	1.5	1.9	1.4	3	2.7	24
	12_Blaine	1.9	2.1	1.9	2.2	2.1	2.6	1.4	1.7	2.6	3	2.2	2.1	2.3	4.1	2.7	4.1	2.5	3	2.3	2.8	2.4	1.8	1.3	1.2	2.6	4.1	24
	Blount	1.8	4.3	2.6	2.1	1.8	2.1	1.8	1.9	1.8	1.8	1.7	1.1	1.4	2	2.3	1.9	1.8	1.8	1.1	.7	.9	1	1.6	1.6	1.8	4.3	24

Monthly Report

Monthly reports provide a matrix view of a single parameter, showing values for the entire month. Invalid or flagged data is shown with a color background or font change defining the data condition. Statistics are provided for each row (day) and column (hour).



Current Date: 6/18/2012 7:25 PM
Site Name: 01_KNOX 0004
Parameter: 01_OZONE 44201

Monthly Report
February 2006

Avg Interval: 1 hour
Units: PPB

Hours

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Summary Max	Avg	RDS
01	AC	27.2	28.4	28.6	27.8	26.8	26.8	26.8	26.7	25.8	32.6	35.9	34.1	34.6	34.7	32.8	32.6	32.7	29.9	28.9	27.8	26.6	23.5	18.9	35.9	29.3	23
02	AC	18.3	16.6	20.2	27.0	20.6	18.3	19.9	16.0	17.7	23.1	28.3	26.6	27.1	25.7	25.9	22.6	16.7	9.7	7.0	12.3	20.4	24.6	25.0	27.1	20.0	23
03	AC	30.4	31.4	33.2	32.4	32.4	32.9	31.3	29.0	AC	AC	AC	34.4	33.9	33.7	32.5	AC	37.6	36.1	36.5	36.0	35.9	37.7	39.1	39.1	33.9	19
04	AC	30.8	30.1	32.1	28.9	21.6	20.5	13.1	14.6	25.7	23.4	35.1	36.3	37.9	42.5	41.9	38.6	36.8	35.3	36.1	39.1	38.5	38.8	38.1	42.5	32.0	23
05	AC	33.8	33.9	33.4	32.6	35.4	36.3	40.2	39.5	26.5	21.2	21.0	21.6	23.1	23.3	24.0	23.8	23.8	24.8	25.9	26.5	25.0	23.8	22.8	42.2	28.0	23
06	AC	30.9	31.0	30.5	31.3	33.0	35.7	36.0	35.9	37.6	40.4	40.6	40.3	41.0	42.5	42.0	40.6	39.3	38.0	37.5	35.8	34.1	33.0	33.4	42.5	36.5	23
07	AC	34.0	34.4	35.5	35.7	35.1	34.2	33.8	33.3	34.1	34.8	35.7	37.2	37.3	37.3	37.1	36.7	36.2	35.6	35.3	34.8	35.5	35.8	32.0	37.3	35.2	23
08	AC	28.8	31.0	28.6	27.1	28.5	23.7	21.7	27.5	32.0	34.4	35.4	34.7	35.0	36.0	36.7	36.6	36.2	35.6	35.3	35.0	35.3	34.0	35.4	36.7	32.3	23
09	AC	32.0	30.3	31.6	31.8	30.6	26.0	22.8	26.6	32.4	34.4	AC	AC	23.6	23.2	30.4	31.7	32.7	33.2	33.4	34.6	35.9	35.6	35.2	35.9	31.0	21
10	AC	35.6	34.0	33.2	32.7	32.2	32.8	33.0	34.7	35.3	36.3	37.6	38.3	38.3	39.1	40.6	40.3	39.3	38.7	38.3	35.2	35.3	36.7	35.9	40.6	36.2	23
11	AC	32.9	30.6	20.6	19.6	20.4	19.4	21.6	26.6	31.6	37.1	39.2	40.3	38.6	37.9	39.0	39.7	37.3	30.7	28.1	28.6	28.0	27.1	26.6	40.3	32.1	23
12	AC	37.2	37.9	38.5	38.9	38.8	38.3	37.0	37.6	38.4	39.5	40.4	40.4	37.9	37.3	39.2	40.0	38.8	38.9	38.9	37.4	36.9	36.2	36.6	40.4	38.5	23
13	AC	28.9	28.0	31.1	31.0	27.3	24.3	18.1	26.3	31.4	34.7	33.7	34.9	36.0	37.2	38.7	39.5	37.6	39.5	30.8	28.6	37.2	36.5	33.0	39.5	32.2	23
14	AC	31.1	30.0	29.0	28.0	27.3	26.6	25.7	26.3	27.6	28.2	28.4	28.3	28.8	29.1	29.4	30.5	30.8	30.3	29.7	29.2	28.1	28.9	27.4	31.1	28.6	23
15	AC	21.1	21.0	20.1	18.0	17.7	14.9	13.0	20.7	30.5	34.8	37.5	40.9	44.7	46.5	44.5	41.7	30.0	18.2	17.0	13.0	10.6	12.4	8.5	46.5	25.1	23
16	AC	10.2	9.8	9.6	6.7	6.1	4.8	7.7	17.3	24.2	29.2	40.3	50.9	56.3	56.2	56.7	52.3	50.7	46.3	40.7	35.2	28.0	31.4	41.4	56.2	31.1	23
17	AC	46.7	46.1	46.6	44.7	42.9	43.9	39.7	37.9	37.7	AC	AC	AC	AC	AC	AC	AC	AC	42.9	42.8	43.9	43.5	43.2	42.3	46.7	43.0	15
18	AC	39.9	39.4	37.6	37.4	38.1	39.0	40.2	41.3	41.3	39.8	40.2	39.9	39.7	40.3	40.6	41.1	40.8	40.8	40.5	39.9	39.5	38.9	38.9	41.3	39.7	23
19	AC	38.1	38.2	38.8	38.2	31.9	31.3	30.8	32.8	32.4	33.9	36.1	36.8	37.4	37.8	38.1	40.3	41.2	40.2	40.0	37.8	37.1	31.0	28.9	41.2	35.8	23
20	AC	31.7	31.5	32.0	32.5	32.5	32.1	31.4	33.9	34.8	33.9	34.3	36.0	37.5	39.1	40.2	41.4	40.9	39.3	29.1	27.7	21.2	14.7	19.0	41.4	32.4	23
21	AC	18.8	13.6	13.8	12.8	13.0	11.6	11.9	16.3	24.8	30.4	AC	30.0	29.4	27.4	28.1	28.2	28.9	30.2	31.8	31.3	31.8	30.1	29.8	31.8	23.8	22
22	AC	27.5	24.0	19.0	15.8	11.7	16.1	28.1	.6	34.5	36.9	38.2	38.8	38.9	40.5	40.4	38.9	37.6	31.6	27.0	26.3	22.8	16.8	11.4	40.5	27.1	23
23	AC	7.8	6.9	5.0	3.0	3.6	2.8	5.6	7.7	11.8	14.2	AC	AC	15.2	16.5	16.8	15.7	17.1	16.4	16.9	17.6	15.2	16.3	15.9	16.9	11.8	21
24	AC	33.1	40.3	41.1	40.1	39.8	39.1	38.1	37.1	37.1	38.8	39.1	41.2	41.4	41.8	42.2	42.7	43.8	41.7	40.3	38.8	37.9	37.1	32.4	43.8	39.3	23
25	AC	29.3	20.2	17.7	18.7	26.8	24.7	33.0	33.2	36.4	40.0	41.1	39.8	37.6	36.2	35.8	34.2	32.6	30.3	31.5	36.0	35.1	37.6	38.5	41.1	32.2	23
26	AC	39.8	39.1	37.4	36.4	36.0	36.6	37.8	38.8	39.3	39.8	39.8	39.2	39.7	40.2	40.2	40.0	40.1	40.3	39.7	38.9	38.8	38.0	37.8	40.3	38.9	23
27	AC	40.2	40.3	39.6	37.9	36.0	33.1	34.5	34.0	34.6	35.8	36.6	37.3	38.2	38.6	39.6	39.4	38.9	39.0	38.6	38.4	35.3	31.2	29.9	40.3	36.8	23
28	AC	.0	.0	.2	.0	.0	.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	.0	23
Max		46.7	46.1	46.6	44.7	42.9	43.9	42.2	41.3	41.3	43.4	41.1	50.9	56.3	56.2	56.7	52.3	50.7	46.3	42.8	43.9	43.5	43.2	42.3	56.2		
Avg		29.0	28.5	27.8	27.3	26.6	25.6	26.1	26.9	30.3	31.7	34.4	35.2	34.5	35.0	35.2	34.9	34.0	32.6	31.4	31.1	30.7	30.0	29.3		30.7	
Count	0	28	28	28	28	28	28	28	28	27	28	23	28	27	27	27	26	27	28	28	28	28	28	28			627

Monthly Report with Parameter Code

If **AQS Null Code**s have been set for invalidated data, they are displayed in the **Monthly Repor**t. If Site Codes, and/or Parameter codes have been selected in the Configuration Menu they will be included in the Header.

update notes to cover the user options for 'show flags' and 'show null codes'

Monthly Sample Data Report

The Monthly Sample Data Report shows the value of the non-continuous values for each day (showing a blank for days where there is no sample).

Data in this report is only shown for parameters with Sample or Composite type, and which have a certain Parameter Template (either "PM25" or "PM10") defined.

Current Time: 8:13 PM

Monthly Sample Report

PM10

July 2011

	01_KNOX	BLOUNT	BLOUNT2	BLOUNT3	Summary		
Day					Average	Max	Count
1	14.1	14.1	14.1	14.1	14.1	14.1	4
4	12.3	12.3	12.3	12.3	12.3	12.3	4
7	19.4	19.4	19.4	19.4	19.4	19.4	4
10	27.2	27.2	27.2	27.2	27.2	27.2	4
13	21.1	21.1	21.1	21.1	21.1	21.1	4
16	18.3	18.3	18.3	18.3	18.3	18.3	4
17	17.7	17.7	17.7	17.7	17.7	17.7	4
19	11.9	11.9	11.9	11.9	11.9	11.9	4
22	14.4	14.4	14.4	14.4	14.4	14.4	4
25	14.6	14.6	14.6	14.6	14.6	14.6	4
28	13.5	13.5	13.5	13.5	13.5	13.5	4
Max	27.2	27.2	27.2	27.2	27.2	27.2	27.2
Average	16.8	16.8	16.8	16.8	16.8	16.8	16.8
Count	11	11	11	11	44	44	44

Monthly Sample Report for PM 2.5 from the Reports Menu

Calibration Results

Calibration reports show the calibration event and results for any zero/span, precision check, or other calibration program.

Current Date : 3/9/2009
Current Time : 3:47 PM

Calibration Report

Site: SITEONE
Source: Logger01
Date: 02-Jul-2008

Parameter	Sequence	Phase	Start Time	End Time	Value	Expected Value	% Error
test1	TESTCAL	PHASE1	00:00:00	00:01:00	1.123	1	12.35

Calibration Report

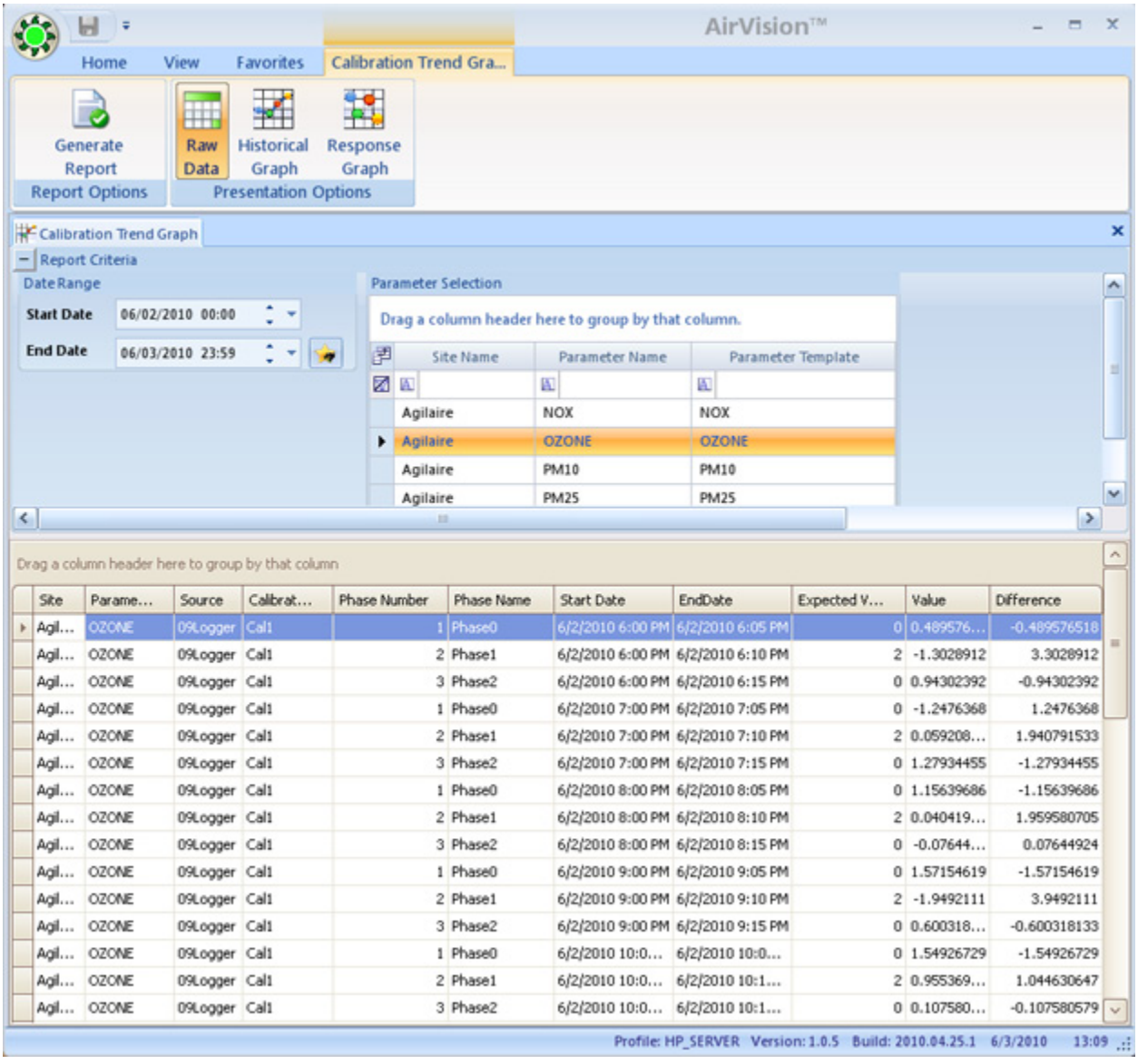
The percentage of error is calculated as follows:

- If the **Cal Span** has not been set in the **Parameter Editor**, zero error is shown as an absolute difference, while span precision errors are shown as a % of the expected value.
- If the Cal Span has been set in the **Parameter Editor** the errors are all shown as a % of the **Cal Span** value.

Calibration Trend Graph

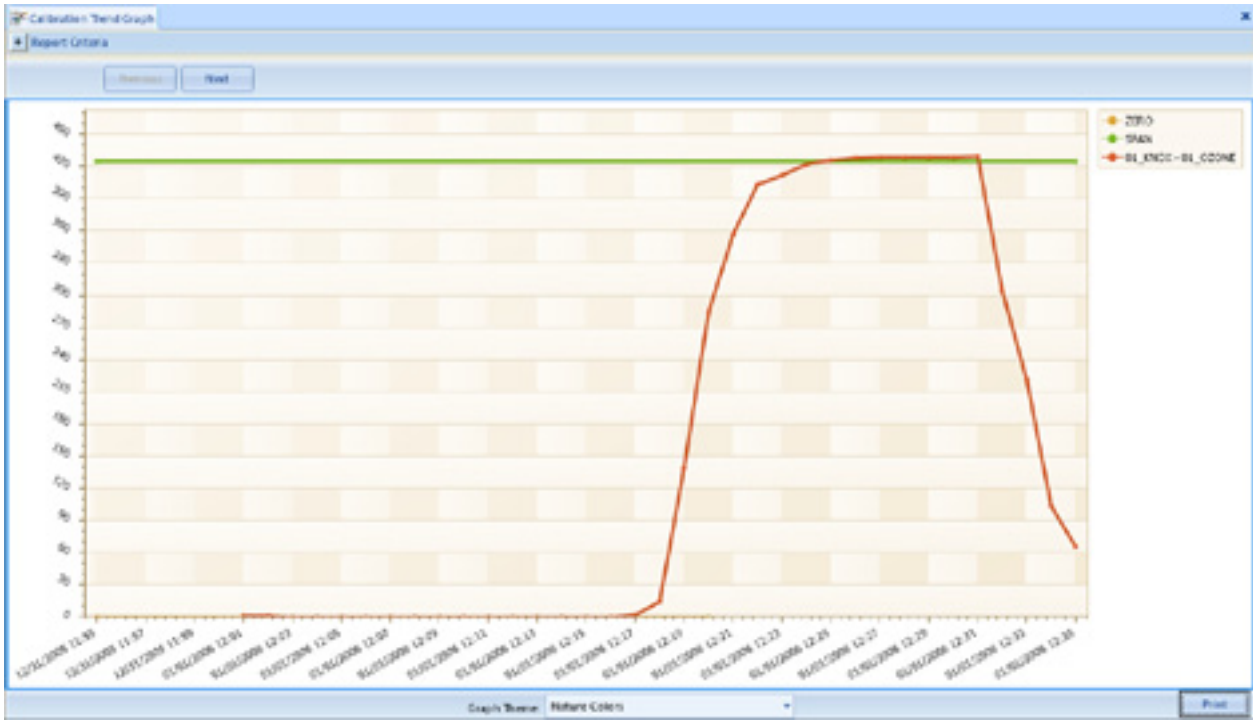
Calibration Trend Graphs provide a long-term view of calibration zero/span results over a user-defined period of time (month, quarter, etc). Select a Start and End Date and a Parameter. Click the Generate Report icon on the ribbon.

If you select **Raw Data Graph** from the ribbon at the top of the screen, you can view calibration data in a text table.


AirVision™
Home
View
Favorites
Calibration Trend Gra...
Generate Report
Report Options
Raw Data
Historical Graph
Response Graph
Presentation Options
Calibration Trend Graph
Report Criteria
Date Range
Start Date 06/02/2010 00:00
End Date 06/03/2010 23:59
Parameter Selection
Drag a column header here to group by that column.
Site Name
Parameter Name
Parameter Template
Agilaire NOX NOX
Agilaire OZONE OZONE
Agilaire PM10 PM10
Agilaire PM25 PM25
Drag a column header here to group by that column
Site Parame... Source Calibrat... Phase Number Phase Name Start Date EndDate Expected V... Value Difference
Agil... OZONE 09Logger Cal1 1 Phase0 6/2/2010 6:00 PM 6/2/2010 6:05 PM 0 0.489576... -0.489576518
Agil... OZONE 09Logger Cal1 2 Phase1 6/2/2010 6:00 PM 6/2/2010 6:10 PM 2 -1.3028912 3.3028912
Agil... OZONE 09Logger Cal1 3 Phase2 6/2/2010 6:00 PM 6/2/2010 6:15 PM 0 0.94302392 -0.94302392
Agil... OZONE 09Logger Cal1 1 Phase0 6/2/2010 7:00 PM 6/2/2010 7:05 PM 0 -1.2476368 1.2476368
Agil... OZONE 09Logger Cal1 2 Phase1 6/2/2010 7:00 PM 6/2/2010 7:10 PM 2 0.059208... 1.940791533
Agil... OZONE 09Logger Cal1 3 Phase2 6/2/2010 7:00 PM 6/2/2010 7:15 PM 0 1.27934455 -1.27934455
Agil... OZONE 09Logger Cal1 1 Phase0 6/2/2010 8:00 PM 6/2/2010 8:05 PM 0 1.15639686 -1.15639686
Agil... OZONE 09Logger Cal1 2 Phase1 6/2/2010 8:00 PM 6/2/2010 8:10 PM 2 0.040419... 1.959580705
Agil... OZONE 09Logger Cal1 3 Phase2 6/2/2010 8:00 PM 6/2/2010 8:15 PM 0 -0.07644... 0.07644924
Agil... OZONE 09Logger Cal1 1 Phase0 6/2/2010 9:00 PM 6/2/2010 9:05 PM 0 1.57154619 -1.57154619
Agil... OZONE 09Logger Cal1 2 Phase1 6/2/2010 9:00 PM 6/2/2010 9:10 PM 2 -1.9492111 3.9492111
Agil... OZONE 09Logger Cal1 3 Phase2 6/2/2010 9:00 PM 6/2/2010 9:15 PM 0 0.600318... -0.600318133
Agil... OZONE 09Logger Cal1 1 Phase0 6/2/2010 10:0... 6/2/2010 10:0... 0 1.54926729 -1.54926729
Agil... OZONE 09Logger Cal1 2 Phase1 6/2/2010 10:0... 6/2/2010 10:1... 2 0.955369... 1.044630647
Agil... OZONE 09Logger Cal1 3 Phase2 6/2/2010 10:0... 6/2/2010 10:1... 0 0.107580... -0.107580579
Profile: HP_SERVER Version: 1.0.5 Build: 2010.04.25.1 6/3/2010 13:09

Historical Calibration Trend Graph

If you select Historical Graph you can view data in a graph. Each color represents a different phase, as shown in the legend. You can change the color scheme by selecting a Graph Scheme from the drop down list at the bottom of the screen.



Historical Calibration Trend Graph

If you select **Response Graph** from the ribbon at the top of the screen, you can review fine-resolution data during each calibration cycle to see instrument response. Each cal can be cycled through using the **Forward**/**Back** button. You can change the color scheme by selecting a Graph Scheme from the drop down list at the bottom of the screen.

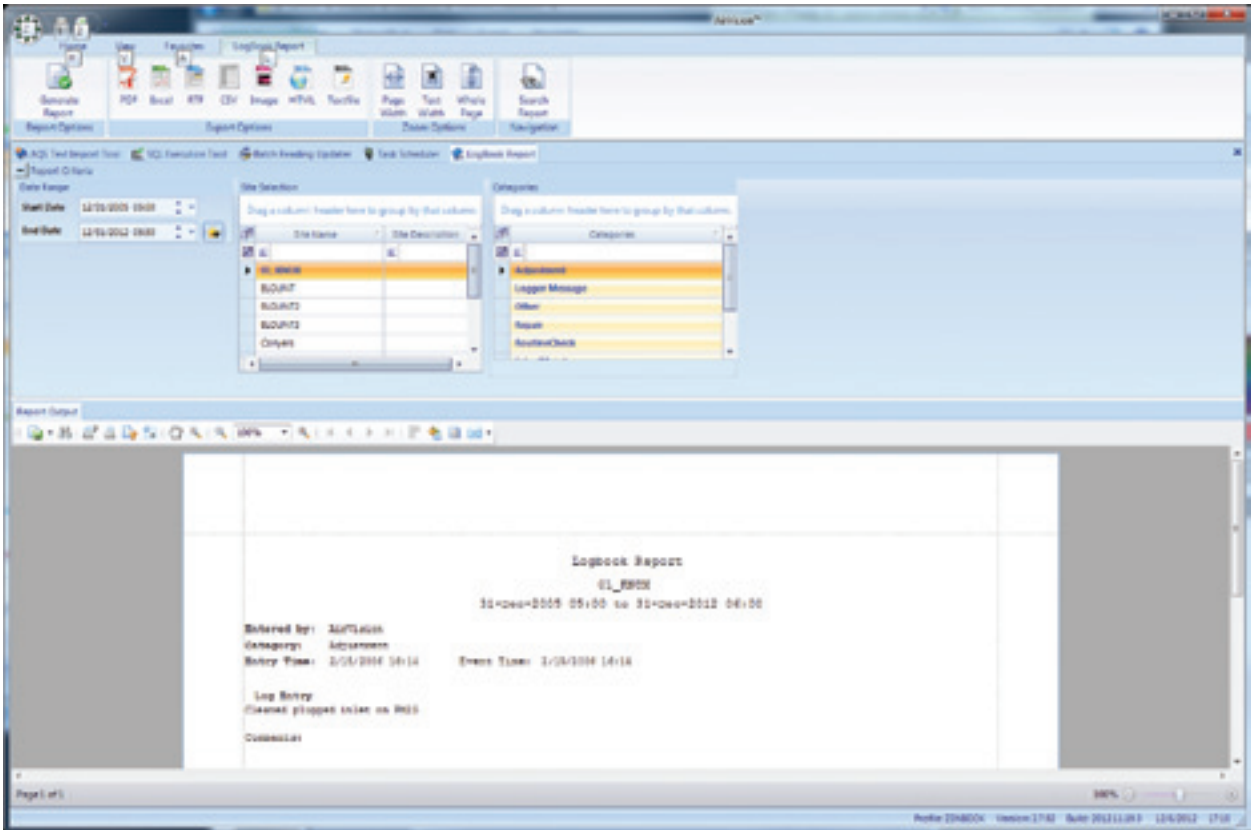
The graph has a filter at the top to define the specific calibration program to be graphed, in the event that a parameter has more than one calibration program associated with it.

Calibration Trend Response Graph

LogBook Report

The **LogBook Report** generates reports of logbook entries that were made in the **LogBook Entries Editor**. To query a LogBook Report select LogBook Report from the **Reports** menu. Select **Start** and **End Dates** and a **Site Name** from the top section of the screen and click the **Generate Report icon** in the upper left section of the screen. The user may also choose one or all Logbook Categories as a filter for the report.

The logbook report will be displayed in the lower section of the screen.



LogBook Report

Audit Trail Report

The **Audit Trail Report** provides a record of modified data.

Current Date : 10/19/2010
Current Time : 10:11 AM

Data Audit Trail

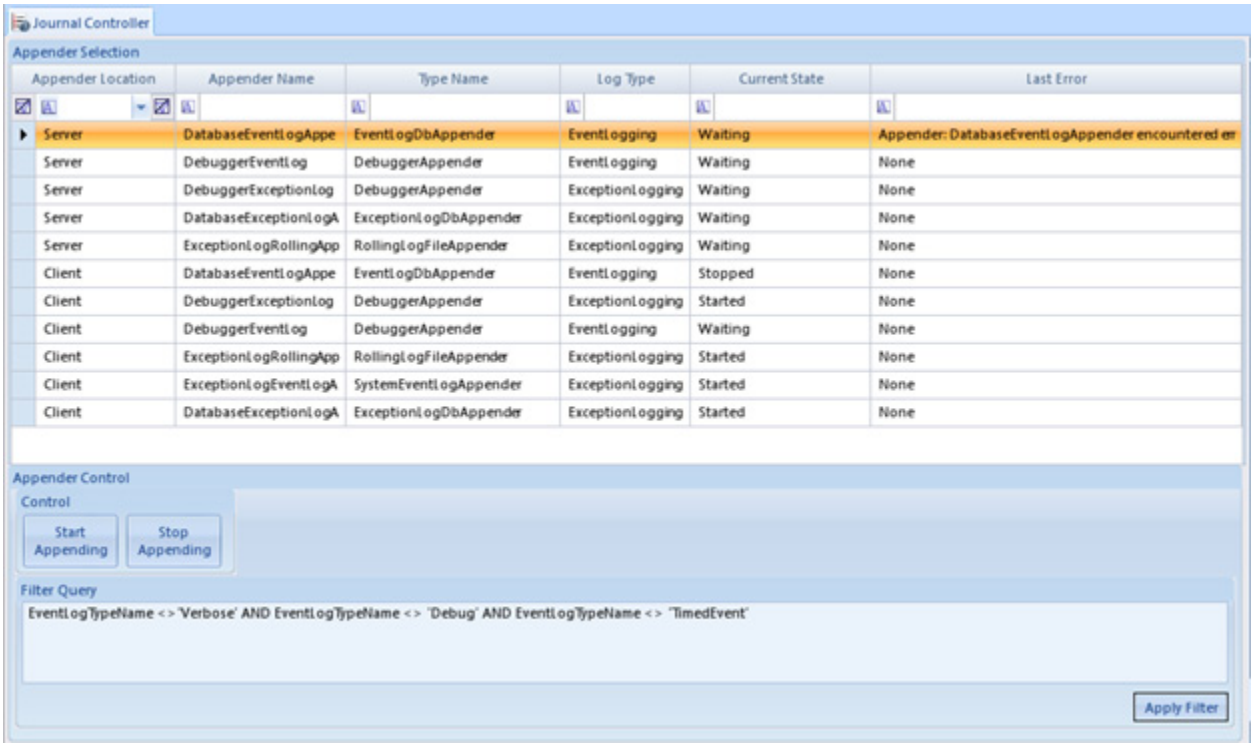
Site: Agilaire 01-Sep-2010 - 19-Oct-2010
Parameter: NOX Interval: 001h

TimeStamp	Raw Value	Final Value	Flags	Time Modified	Modified By
10/04/2010 18:00	3	3		10/08/2010 11:03	AirVision
10/04/2010 19:00	3	3		10/08/2010 11:03	AirVision
10/04/2010 20:00	3	3		10/08/2010 11:03	AirVision
10/04/2010 21:00	3	3		10/08/2010 11:03	AirVision
10/04/2010 22:00	4	4		10/08/2010 11:03	AirVision
10/04/2010 23:00	4	4		10/08/2010 11:03	AirVision
10/05/2010 00:00	4	4		10/08/2010 11:03	AirVision
10/05/2010 01:00	4	4		10/08/2010 11:03	AirVision
10/05/2010 02:00	4	4		10/08/2010 11:03	AirVision
10/05/2010 03:00	4	4		10/08/2010 11:03	AirVision

Audit Trail Report

Journal Controller

The Journal Controller is for use by Agilaire support only.


Journal Controller
Appender Selection
Appender Location
Appender Name
Type Name
Log Type
Current State
Last Error
Server DatabaseEventLogAppe EventLogDbAppender EventLogging Waiting Appender: DatabaseEventLogAppender encountered er
Server DebuggerEventLog DebuggerAppender EventLogging Waiting None
Server DebuggerExceptionLog DebuggerAppender ExceptionLogging Waiting None
Server DatabaseExceptionLogA ExceptionLogDbAppender ExceptionLogging Waiting None
Server ExceptionLogRollingApp RollingLogFileAppender ExceptionLogging Waiting None
Client DatabaseEventLogAppe EventLogDbAppender EventLogging Stopped None
Client DebuggerExceptionLog DebuggerAppender ExceptionLogging Started None
Client DebuggerEventLog DebuggerAppender EventLogging Waiting None
Client ExceptionLogRollingApp RollingLogFileAppender ExceptionLogging Started None
Client ExceptionLogEventLogA SystemEventLogAppender ExceptionLogging Started None
Client DatabaseExceptionLogA ExceptionLogDbAppender ExceptionLogging Started None
Appender Control
Control
Start Appending
Stop Appending
Filter Query
EventLogTypeName <> 'Verbose' AND EventLogTypeName <> 'Debug' AND EventLogTypeName <> 'TimedEvent'
Apply Filter

Journal Controller in Utilities menu

Logger Reports

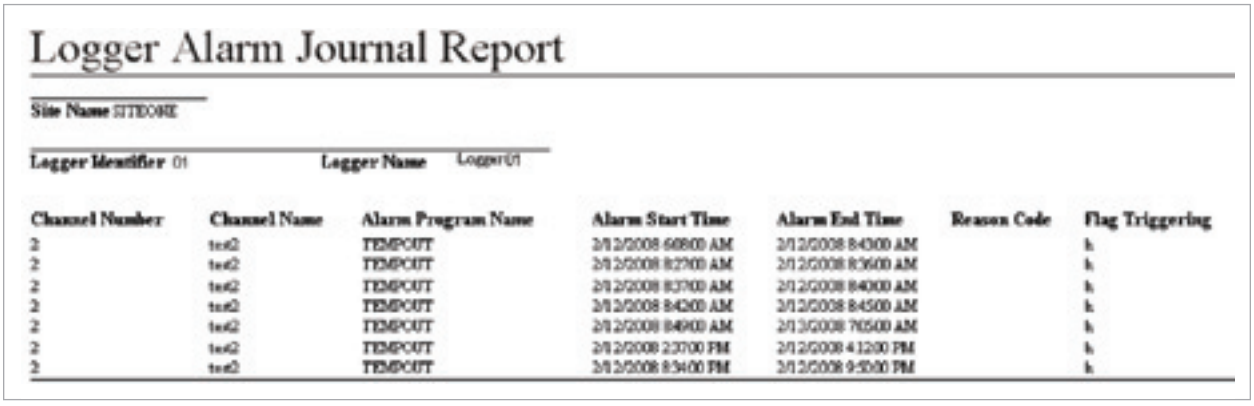
The **Logger Reports** folder in the **Reports** menu contains the following reports:

- **Alarm Journal**
- **Central Messages**
- **Input Line Status Report**
- **Power Failure Report**

Alarm Journal

The **Alarm Journal** displays the Site Name, Channel Number, Channel Name, Alarm Program Name, Alarm Start/End Time, Reason Code, and Triggering Flag.

To run an **Alarm Journal**, select **Reports** > **Logger Reports** > **Alarm Journal**. In the **Report Criteria** screen, select a **Start/End Date** and a **Site/ Source Name**. Click the **Generate Report** icon. A Logger Alarm Journal Report will be displayed in the bottom section of the screen.



Logger Alarm Journal Report

Site Name SITECODE

Logger Identifier 01 Logger Name Logger01

Channel Number	Channel Name	Alarm Program Name	Alarm Start Time	Alarm End Time	Reason Code	Flag Triggering
2	test2	TEMPOUT	2/12/2008 60800 AM	2/12/2008 84300 AM		h
2	test2	TEMPOUT	2/12/2008 82700 AM	2/12/2008 83600 AM		h
2	test2	TEMPOUT	2/12/2008 82700 AM	2/12/2008 84000 AM		h
2	test2	TEMPOUT	2/12/2008 84200 AM	2/12/2008 84500 AM		h
2	test2	TEMPOUT	2/12/2008 84900 AM	2/13/2008 70500 AM		h
2	test2	TEMPOUT	2/12/2008 23700 PM	2/12/2008 41200 PM		h
2	test2	TEMPOUT	2/12/2008 83400 PM	2/12/2008 95000 PM		h

Central Messages

To run the **Central Messages Report**, **Poll Central Messages** must be selected in the **Task Scheduler** in one of the polling tasks. If you're polling manually, select **Central Message** as a **Data Type**. To run the report, select **Reports>Logger Reports>Central Messages**, select a date range and Source then click **Generate Report**.

Logger Central Message Report

Site Name Agilaire Site Description

Logger Identifier 01 Logger Name Logger01

Message Time	Message Text
10/4/2010 11:43:10 AM	RESTART

Input Line Status Report

The **Input Line Status Report** displays Site and Logger Name, Logger ID, Line Number, Line Name, Line State, Time of Change, and Line Description.

To run an **Input Line Status Report**, select **Reports** > **Logger Reports** > **Input Line Status Report**. In the **Report Criteria** screen, select a **Start/End Date** and a **Site/Source Name**. Click the **Generate Report** icon. An **Input Line Status Report** will be displayed in the bottom section of the screen.Each site/logger is shown in a separate page.

Input Line Report

Site Name SITEONE

Logger Name Logger01 Logger Identifier 01

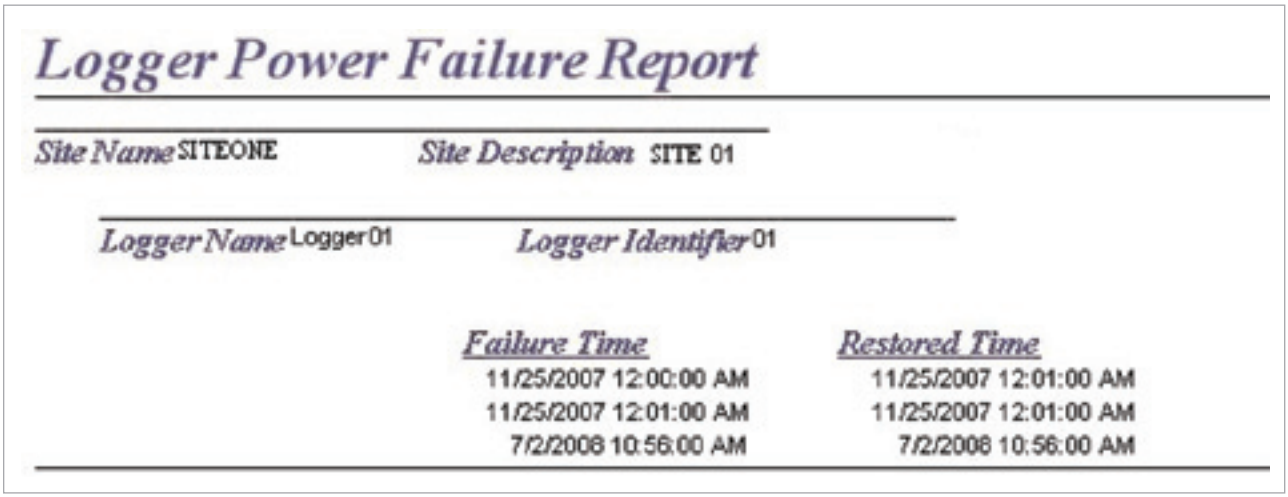
Line Number	Line Name	Line State	Time Of Change	Line Description
4	OutPut Line4	☑	2/5/2009 1:38:45 PM	
4	OutPut Line4	☐	2/5/2009 1:38:46 PM	
37	OutPut Line37	☑	5/5/2009 12:00:02 AM	
37	OutPut Line37	☐	5/5/2009 12:05:01 AM	
37	OutPut Line37	☑	5/6/2009 12:00:02 AM	
2	DIG002	☑	5/6/2009 12:00:02 AM	
2	DIG002	☐	5/6/2009 12:05:01 AM	
37	OutPut Line37	☐	5/6/2009 12:05:01 AM	
37	OutPut Line37	☑	5/7/2009 12:00:02 AM	
2	DIG002	☑	5/7/2009 12:00:02 AM	
2	DIG002	☐	5/7/2009 12:05:01 AM	
37	OutPut Line37	☐	5/7/2009 12:05:01 AM	
37	OutPut Line37	☑	5/8/2009 12:00:02 AM	
2	DIG002	☑	5/8/2009 12:00:02 AM	
2	DIG002	☐	5/8/2009 12:05:01 AM	
37	OutPut Line37	☐	5/8/2009 12:05:01 AM	

Input Line Report

Power Failure Report

The **Power Failure Report** displays Site and Logger Name, Logger ID, Failure Time and Restored Time.

To run a **Power Failure Report**, select **Reports** > **Logger Reports** > **Power Failure Report**. In the **Report Criteria** screen, select a **Start/End Date** and a **Site/ Source Name**. Click the **Generate Report** icon. A **Power Failure Report** will be displayed in the bottom section of the screen.Each site/logger is shown in a separate page.



Logger Power Failure Report

Site Name SITEONE Site Description SITE 01

Logger Name Logger01 Logger Identifier 01

Failure Time	Restored Time
11/25/2007 12:00:00 AM	11/25/2007 12:01:00 AM
11/25/2007 12:01:00 AM	11/25/2007 12:01:00 AM
7/2/2008 10:56:00 AM	7/2/2008 10:56:00 AM

Power Failure Report

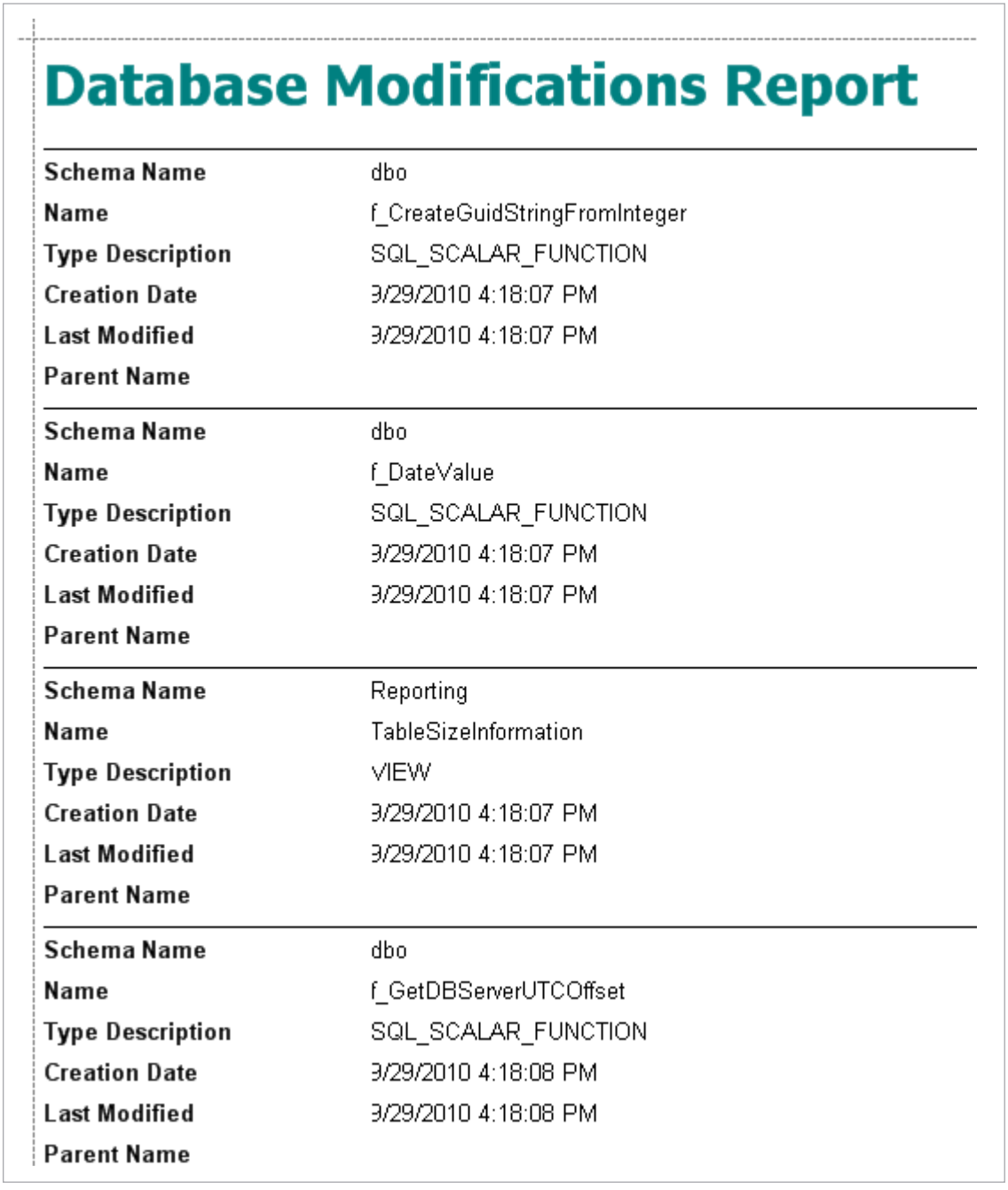
Internal Reports

The Internal Reports folder contains the following reports:

- DB Modification History
- Exception Journal
- Journal Message Log
- Software Version Report
- Table Size Information

DB Modification History

The Database Modifications Report lists all modifications that were made to the AirVision database by Agilaire.



Database Modifications Report

Schema Name	dbo
Name	f_CreateGuidStringFromInteger
Type Description	SQL_SCALAR_FUNCTION
Creation Date	3/29/2010 4:18:07 PM
Last Modified	3/29/2010 4:18:07 PM
Parent Name	

Schema Name	dbo
Name	f_DateValue
Type Description	SQL_SCALAR_FUNCTION
Creation Date	3/29/2010 4:18:07 PM
Last Modified	3/29/2010 4:18:07 PM
Parent Name	

Schema Name	Reporting
Name	TableSizeInformation
Type Description	VIEW
Creation Date	3/29/2010 4:18:07 PM
Last Modified	3/29/2010 4:18:07 PM
Parent Name	

Schema Name	dbo
Name	f_GetDBServerUTCOffset
Type Description	SQL_SCALAR_FUNCTION
Creation Date	3/29/2010 4:18:08 PM
Last Modified	3/29/2010 4:18:08 PM
Parent Name	

Database Modification History Report (Reports>Internal Reports>DB Modification History)

Exception Journal Report

The Exception Journal Report displays all AirVision Exception messages for the Date Range and Logging Type selected. Logging Types are selected from a drop-down list of the following: Unhandled, Nested, Rethrown, Asset, and Validation.

Exception Journal Report

Time Stamp	Exception Log Type	Exception Type Name	UtilityJournalMessageID
10/4/2010 11:03:13 AM	Nested	System.Net.Sockets.SocketException	a2142582-c8cf-df11-91bd-001731c6e8fb

Computer Name	Windows User	Application User	Program Name	Product Version
HP_Server	SYSTEM	AirVision	AirVision.WindowsService	2010.09.18.1

Assembly Name	Namespace	Type Name
System.dll	System.Net.Sockets	Socket

Method Prototype

Int32 Send(Byte[], Int32, Int32, System.Net.Sockets.SocketFlags)

Exception Message

An established connection was aborted by the software in your host machine

Exception Stack Trace

at System.Net.Sockets.Socket.Send(Byte[] buffer, Int32 offset, Int32 size, SocketFlags socketFlags)
at System.Net.Sockets.NetworkStream.Write(Byte[] buffer, Int32 offset, Int32 size)

Time Stamp	Exception Log Type	Exception Type Name	UtilityJournalMessageID
10/4/2010 11:03:13 AM	Nested	System.IO.IOException	a3142582-c8cf-df11-91bd-001731c6e8fb

Computer Name	Windows User	Application User	Program Name	Product Version
HP_Server	SYSTEM	AirVision	AirVision.WindowsService	2010.09.18.1

Assembly Name	Namespace	Type Name
System.dll	System.Net.Sockets	NetworkStream

Method Prototype

Void Write(Byte[], Int32, Int32)

Exception Message

Unable to write data to the transport connection: An established connection was aborted by the software in your host machine.

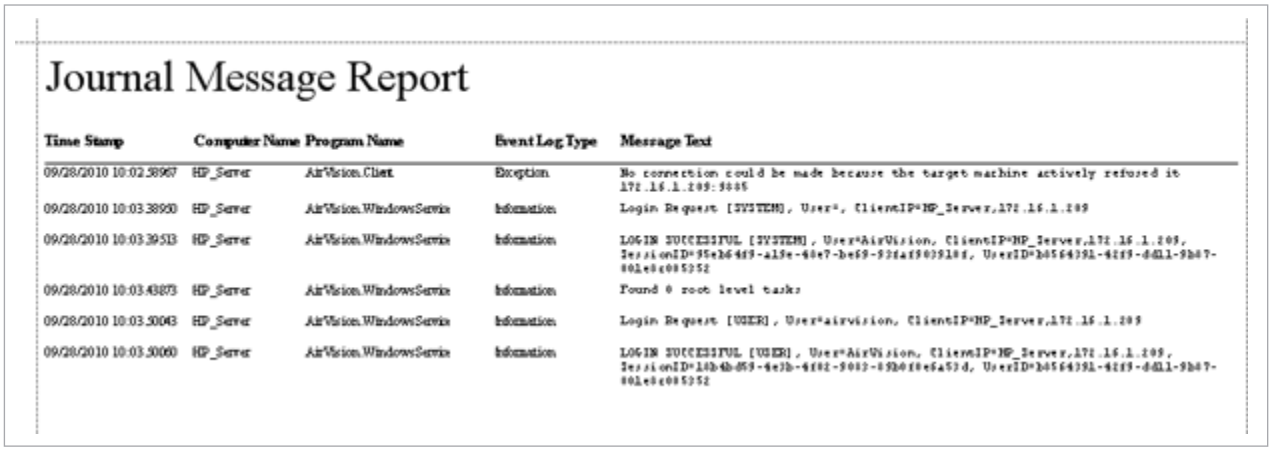
Exception Stack Trace

at System.Net.Sockets.NetworkStream.Write(Byte[] buffer, Int32 offset, Int32 size)
at AirVision.Services.Communication.Communicators.TcpCommunicator.Write(String command)

Exception Journal Report (Reports>Internal Reports>Exception Journal)

Journal Message Log

The **Journal Message Log** displays detailed messages about the Logging Types you select. Type selections are: Fatal, Exception, Error, Warning, Startup, Shutdown, Information, Communication, Verbose, Debug, Timed Event, or Select all.



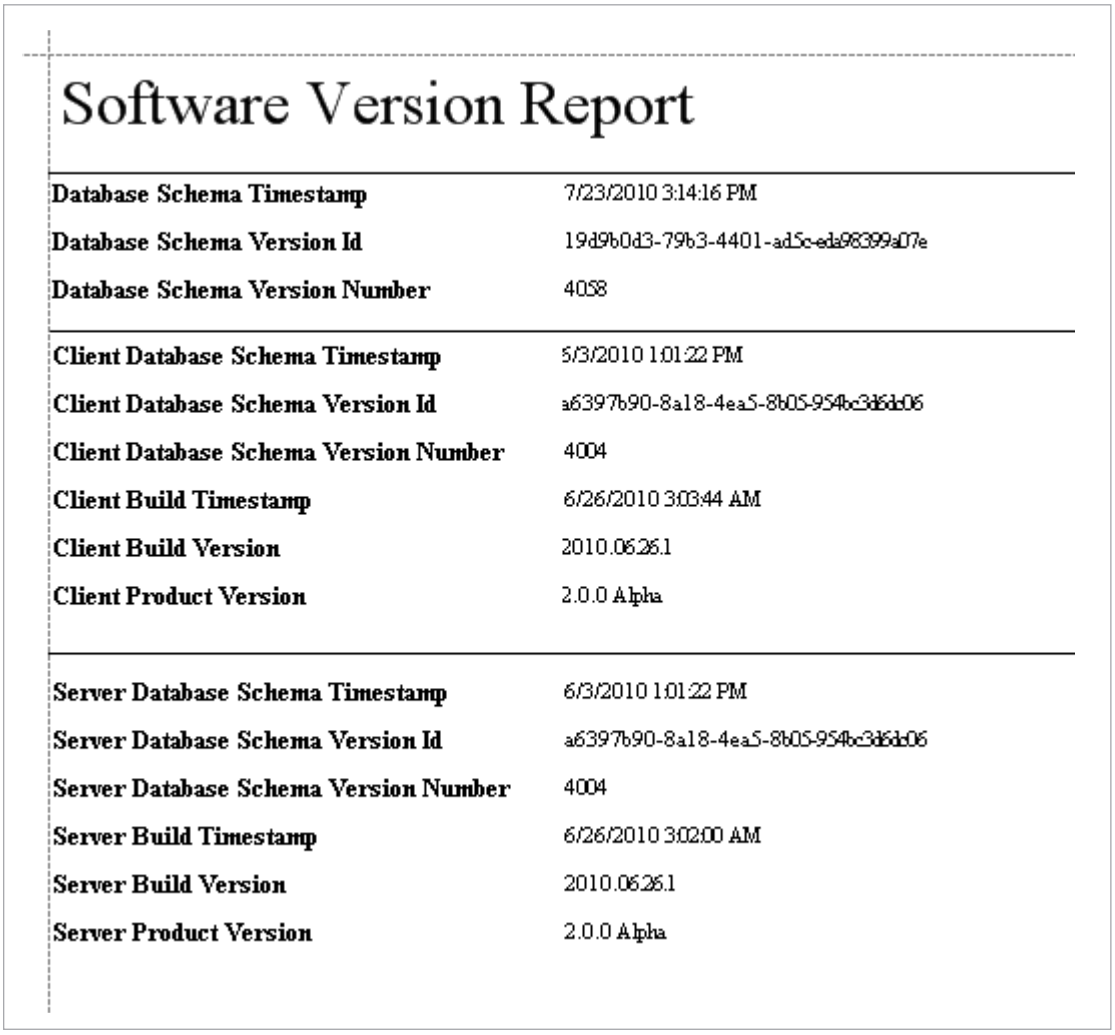
Journal Message Report

Time Stamp	Computer Name	Program Name	Event Log Type	Message Text
09/28/2010 10:02:58967	HP_Server	AirVision.Client	Exception	No connection could be made because the target machine actively refused it 172.16.1.209:9885
09/28/2010 10:03:38950	HP_Server	AirVision.WindowsService	Information	Login Request [SYSTEM], User=, ClientIP=HP_Server,172.16.1.209
09/28/2010 10:03:39513	HP_Server	AirVision.WindowsService	Information	LOGIN SUCCESSFUL [SYSTEM], User=AirVision, ClientIP=HP_Server,172.16.1.209, SessionID=95eb64f9-a15e-40e7-be69-93faf909218f, UserID=b0564391-42f9-d4l1-9b87-80le8c0852f52
09/28/2010 10:03:43873	HP_Server	AirVision.WindowsService	Information	Found 0 root level tasks
09/28/2010 10:03:50043	HP_Server	AirVision.WindowsService	Information	Login Request [USER], User=airvision, ClientIP=HP_Server,172.16.1.209
09/28/2010 10:03:50060	HP_Server	AirVision.WindowsService	Information	LOGIN SUCCESSFUL [USER], User=AirVision, ClientIP=HP_Server,172.16.1.209, SessionID=14b4b-f59-4e3b-4f82-9082-95b0f8e6a53d, UserID=b0564391-42f9-d4l1-9b87-80le8c0852f52

Journal Message Log (Reports>Internal Reports)

Software Version Report

The **Software Version Report** (**Reports>Internal Reports**) displays Timestamps for Database Schemata and Builds, Version IDs, and Software Version.



Software Version Report

Database Schema Timestamp	7/23/2010 3:14:16 PM
Database Schema Version Id	19d9b0d3-79b3-4401-ad5c-eda98399a07e
Database Schema Version Number	4058
Client Database Schema Timestamp	5/3/2010 1:01:22 PM
Client Database Schema Version Id	a6397b90-8a18-4ea5-8b05-954bc3d6dc06
Client Database Schema Version Number	4004
Client Build Timestamp	6/26/2010 3:03:44 AM
Client Build Version	2010.06.26.1
Client Product Version	2.0.0 Alpha
Server Database Schema Timestamp	6/3/2010 1:01:22 PM
Server Database Schema Version Id	a6397b90-8a18-4ea5-8b05-954bc3d6dc06
Server Database Schema Version Number	4004
Server Build Timestamp	6/26/2010 3:02:00 AM
Server Build Version	2010.06.26.1
Server Product Version	2.0.0 Alpha

Table Size Information

The Table Size Information Report lists all tables in the database and their size.

Table Size Information Report

Table Name	Rows	Reserved (K)	Data (K)	Index Size (K)	Unused (K)
All Tables	24,400	29,160	24,288	4,280	592
AdvpCharacteristicRelation	12	32	8	24	0
AdvpDataCharacteristic	4	32	8	24	0
AdvpHistoricalAverage	0	0	0	0	0
AdvpLogicalJoinOperator	2	32	8	24	0
AdvpRuleCondition	0	0	0	0	0
AdvpRuleStatus	0	0	0	0	0
AdvpRuleStatusSite	0	0	0	0	0
AdvpValueComparisonType	4	32	8	24	0
AlarmAdvpParameter	0	0	0	0	0
AlarmAdvpRule	0	0	0	0	0
AlarmAdvpTask	0	0	0	0	0
AlarmTriggerFlag	0	0	0	0	0
AmbAirNowFlagDetail	6	16	8	8	0
AmbAirNowTask	0	0	0	0	0
AmbAqiLevel	63	88	56	32	0
AmbAqiProgram	10	32	8	24	0
AmbAqsBlankType	3	32	8	24	0
AmbAqsCompositeType	5	32	8	24	0
AmbAqsCountyTribalCode	3,376	784	504	248	32
AmbAqsDurationCode	23	32	8	24	0
AmbAqsFrequencyCode	31	32	8	24	0
AmbAqsNullCode	52	64	16	48	0
AmbAqsParameterCategory	4	32	8	24	0
AmbAqsParameterType	1,065	320	240	72	8
AmbAqsStateCode	57	48	8	40	0
AmbAqsUnitCode	124	56	24	32	0
AmbFrequencyDistribRange	0	0	0	0	0
AmbFrequencyDistribution	0	0	0	0	0
AmbFtpTransfer	0	0	0	0	0
AmbVosProgram	0	0	0	0	0
AmbWindRoseLevel	16	16	8	8	0
AmbWindRoseProgram	2	32	8	24	0

Table Report (Reports>Internal Reports)

Quality Assurance/Analysis Report

Concentration Distribution Report

Concentration Distribution reports show the number of readings that fall into user-defined concentration ranges. The user defines the concentration ranges for each parameter type in the Frequency/Concentration Report Editor.

Current Date : 6/21/2009
Current Time : 12:05 AM

Concentration Distribution Report

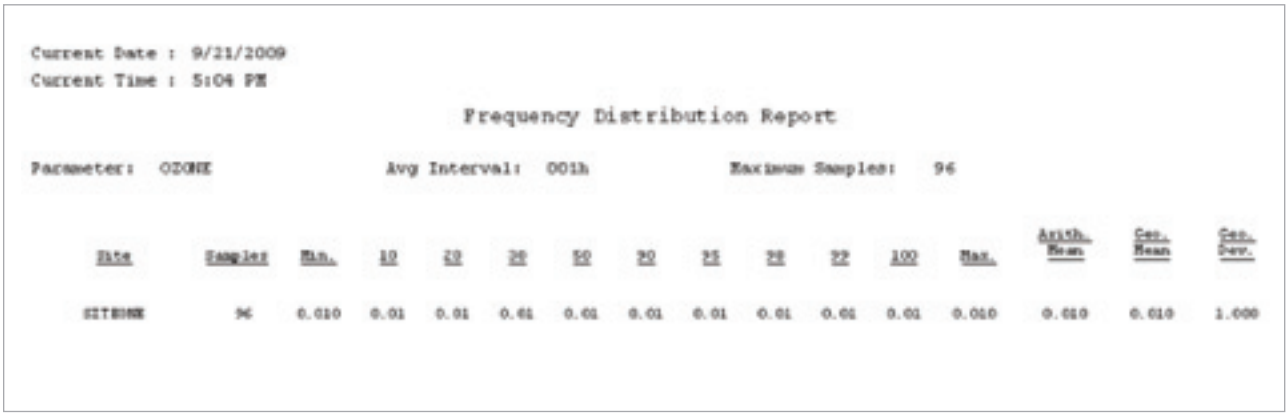
Parameter: OZONE Avg Interval: 001h Maximum Samples: 9363

Site	Samples	Min.	310	320	330	340	350	360	370	380	>390	Max.	Arith. Mean	Geo. Mean	Geo. Dev.
SITEONE	9363	-1179.3	8588	0	0	8	0	0	0	0	767	505.5	18.5	32.8	7.6

Concentration Distribution Report

Frequency Distribution Report

The **Frequency Distribution Report** provides a breakdown of concentration values that represent the Nth percentile of a requested data set. In the example, the 95th percentile for ozone for the given time period was 46 ppb, meaning that 95% of the ozone readings were at or below 46 ppb. The report also lists minimum, maximum, means, and deviation. The report requires that percentile ranges be set up previously for a given Parameter Template (**Configuration Editors**> **Frequency Distribution**. The report cannot be run on a parameter that does not have a Parameter template and a Frequency Distribution report configuration.



Current Date : 9/21/2009
Current Time : 5:04 PM

Frequency Distribution Report

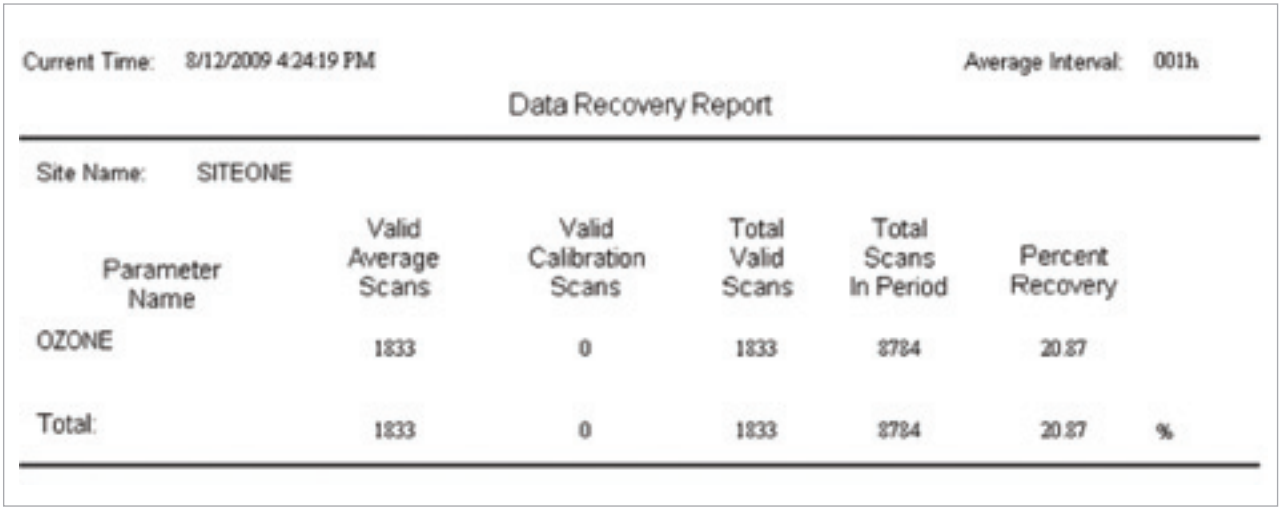
Parameter: OZONE Avg Interval: 001h Maximum Samples: 96

Site	Samples	Min.	10	20	30	50	70	75	80	90	100	Max.	Arith. Mean	Geo. Mean	Geo. Dev.
SITE08	96	0.010	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.010	0.010	0.010	1.000

Frequency Distribution Report

Data Recovery Report

The Data Recovery report provides a summary, by site, of each parameter and its rate of successful data capture, which allows you to summarize the reliability of the monitoring network. The Percent Recovery is a calculated by the number of valid averages divided by the number of possible averages in the reporting period.



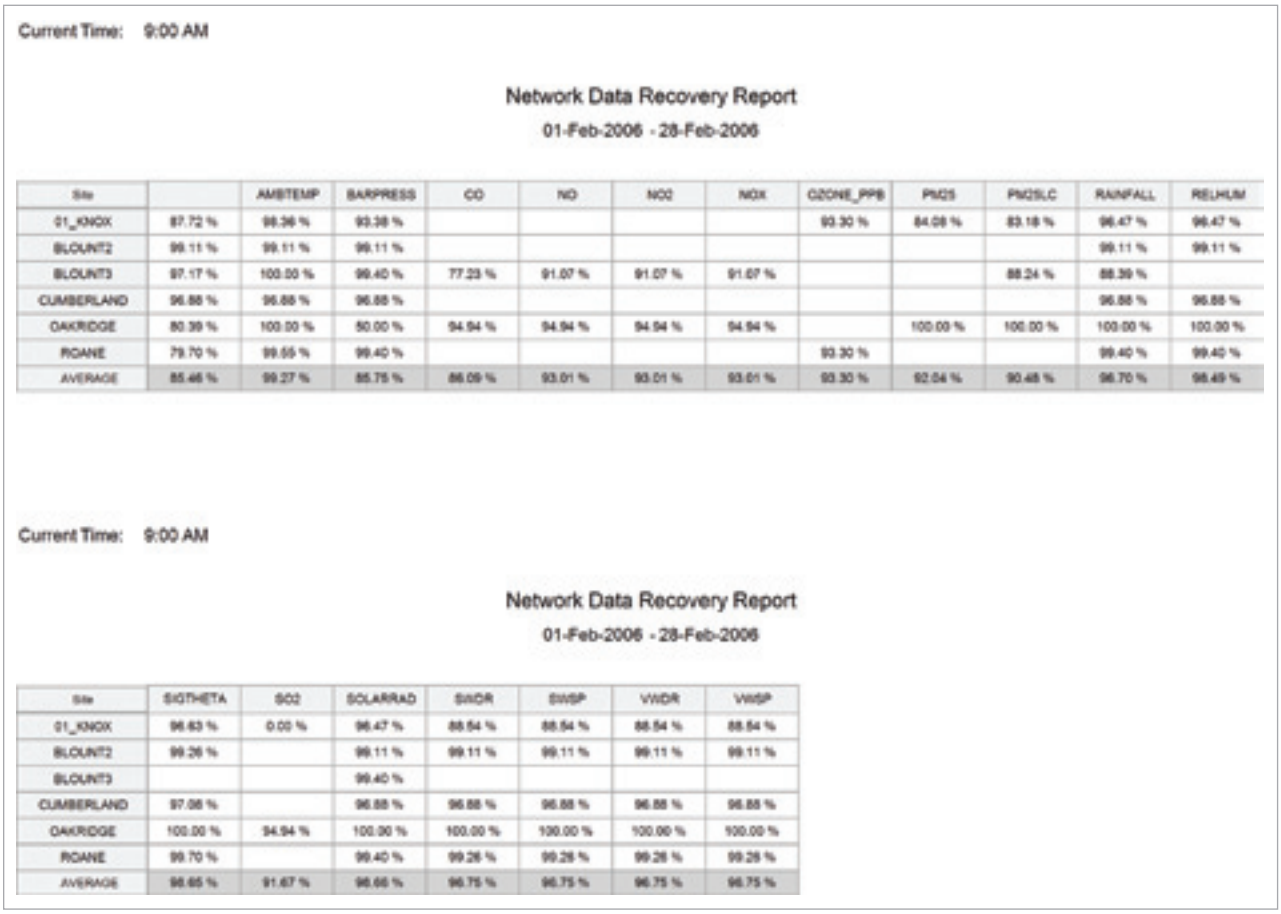
Current Time: 8/12/2009 4:24:19 PM Average Interval: 001h

Data Recovery Report

Site Name: SITEONE

Parameter Name	Valid Average Scans	Valid Calibration Scans	Total Valid Scans	Total Scans In Period	Percent Recovery	
OZONE	1833	0	1833	8784	20.87	
Total:	1833	0	1833	8784	20.87	%

Data Recovery Report



Current Time: 9:00 AM

Network Data Recovery Report

01-Feb-2006 - 28-Feb-2006

Site		AMBTEMP	BARPRESS	CO	NO	NO2	NOX	OZONE_PPB	PM25	PM25LC	RAINFALL	RELHUM
01_KNOX	87.72 %	99.36 %	93.38 %					93.30 %	84.08 %	83.18 %	96.47 %	96.47 %
BLOUNT2	99.11 %	99.11 %	99.11 %								99.11 %	99.11 %
BLOUNT3	97.17 %	100.00 %	99.40 %	77.23 %	91.07 %	91.07 %	91.07 %			88.24 %	88.39 %	
CUMBERLAND	96.88 %	96.88 %	96.88 %								96.88 %	96.88 %
OAKRIDGE	80.39 %	100.00 %	50.00 %	94.94 %	94.94 %	94.94 %	94.94 %		100.00 %	100.00 %	100.00 %	100.00 %
ROANE	79.70 %	99.55 %	99.40 %					93.30 %			99.40 %	99.40 %
AVERAGE	85.46 %	99.27 %	85.75 %	86.09 %	93.01 %	93.01 %	93.01 %	93.30 %	92.04 %	90.48 %	96.70 %	96.49 %

Current Time: 9:00 AM

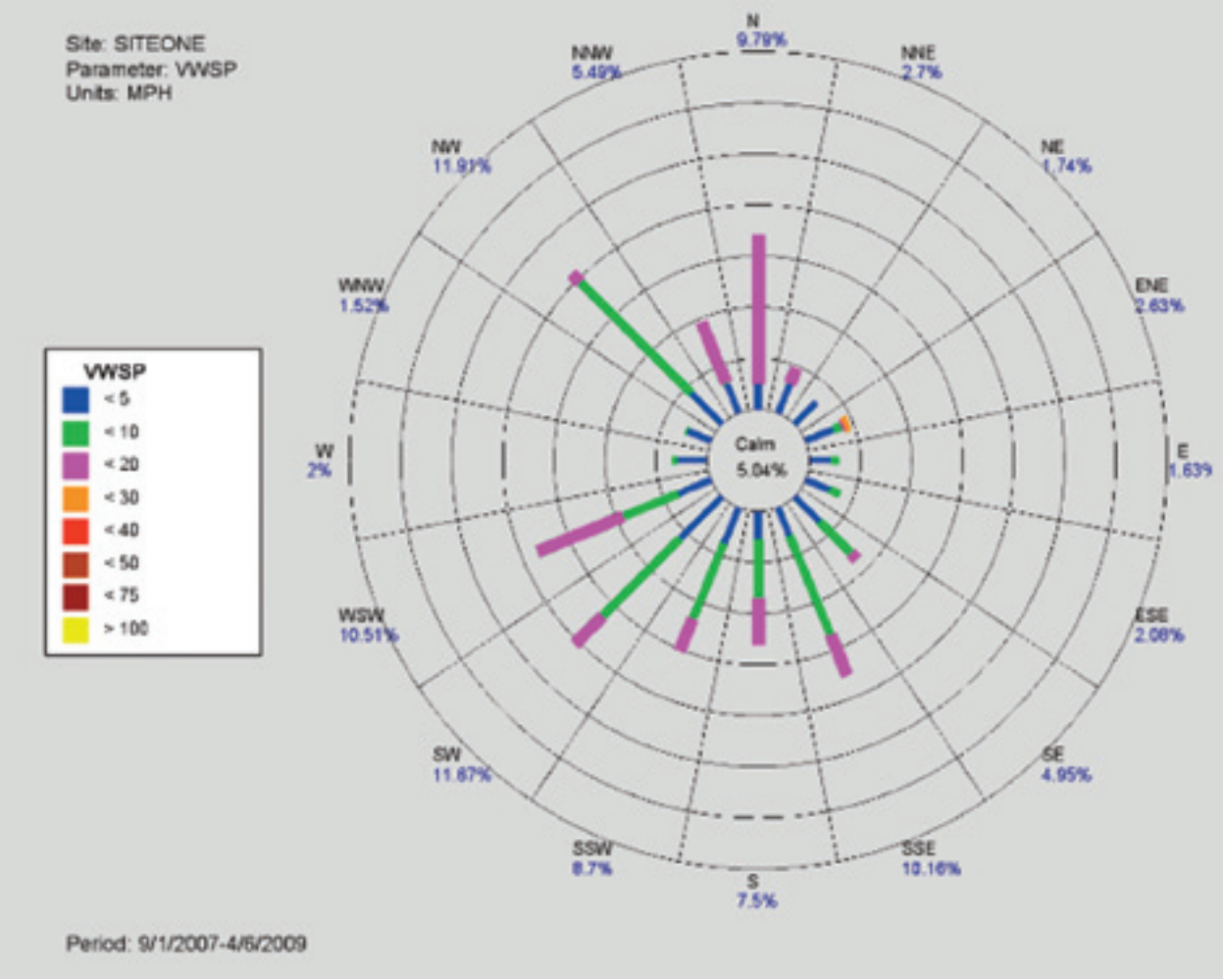
Network Data Recovery Report

01-Feb-2006 - 28-Feb-2006

Site	SIGTHETA	SO2	SOLARRAD	SWDR	SWSP	VWDR	VWSP
01_KNOX	96.63 %	0.00 %	96.47 %	88.54 %	88.54 %	88.54 %	88.54 %
BLOUNT2	99.26 %		99.11 %	99.11 %	99.11 %	99.11 %	99.11 %
BLOUNT3			99.40 %				
CUMBERLAND	97.06 %		96.88 %	96.88 %	96.88 %	96.88 %	96.88 %
OAKRIDGE	100.00 %	94.94 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
ROANE	99.70 %		99.40 %	99.26 %	99.26 %	99.26 %	99.26 %
AVERAGE	98.66 %	91.67 %	98.66 %	96.75 %	96.75 %	96.75 %	96.75 %

Wind/Pollution Rose

The Wind/Pollution Rose correlates wind direction data with another reading, either wind speed/magnitude, or a pollutant concentration value. The length of the line corresponds to the frequency of readings in that direction and concentration value, while the line color corresponds to the magnitude of the speed/pollutant value.



Wind/Pollution Rose

Joint Frequency Distribution Report

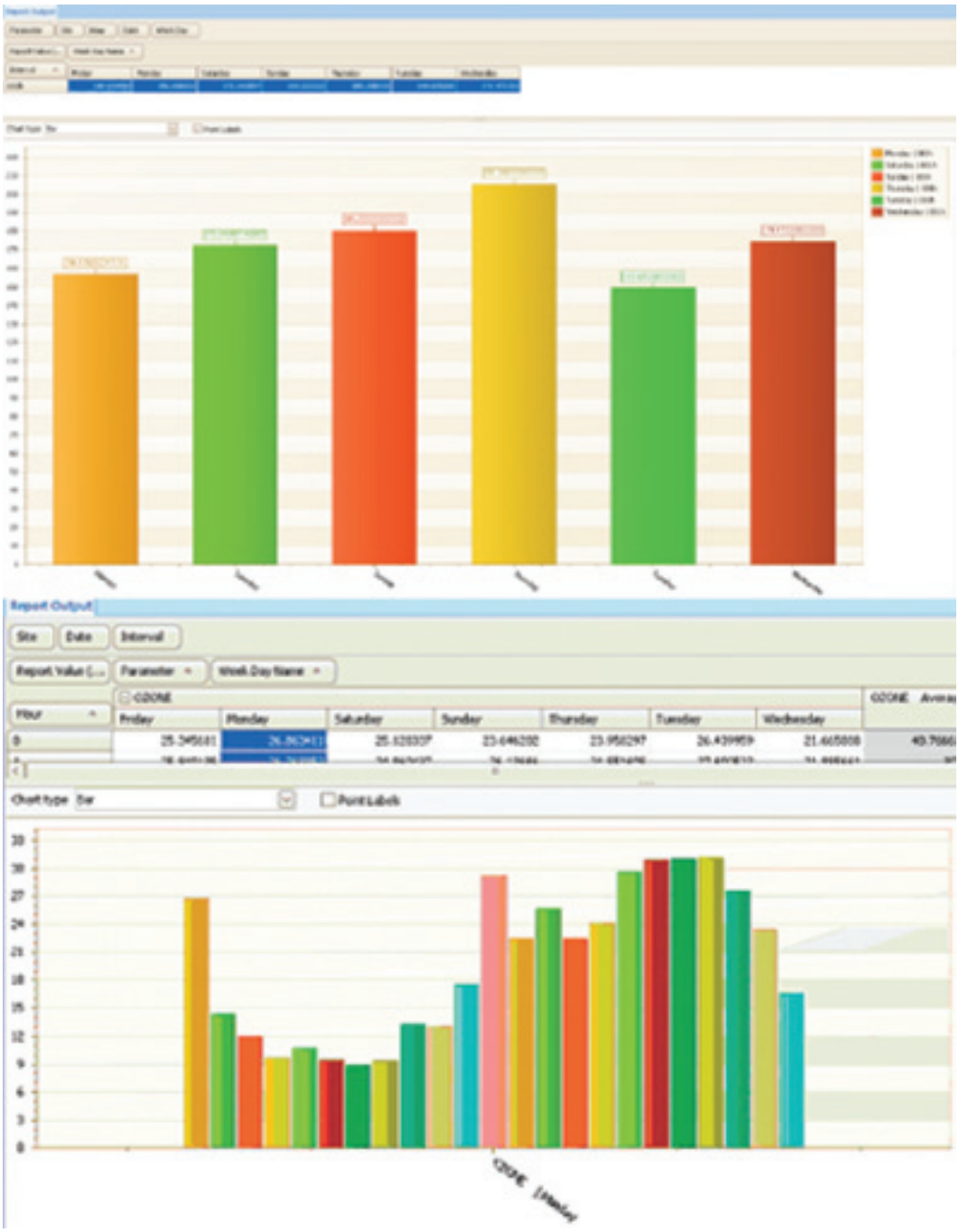
The Joint Frequency Distribution (JFD) report provides a tabular summary of the same data that is represented in the Wind/Pollution Rose report. This data correlates a wind speed or pollutant value, by programmed value ranges, with the occurrence of that data in various wind direction sectors. The JFD report may only be run against the same Wind/Pollution Rose programs created in the Wind Rose Levels Editor.

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq.
< 5	3.94	7.43	2.93	3.53	1.37	1.27	1.81	1.49	1.45	2.25	4.06	3.97	3.49	2.99	3.17	2.99	48.14
< 10	0	0.04	0.03	0.75	0.42	0.32	1.54	3.36	3	3.8	5.02	2.7	0.79	0.39	3.72	0.19	26.07
< 20	7.65	0.76	0	0.04	0	0.01	0.43	1.34	1.69	1.12	1.2	2.15	0	0	0.27	1.45	19.11
< 30	0	0	0	0.14	0	0	0	0.11	0.01	0	0	0	0	0	0	0	0.26
< 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
< 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
< 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11.59																

Joint Frequency Distribution Report

Data Analysis

The Data Analysis Tool allows the user to create ad hoc reports and graphs correlating data sets with parameters, such as hour of the day, day of the week or month, and identify composite statistics and trends. Examples below show day of the week averages and hour of the day averages for larger data sets.

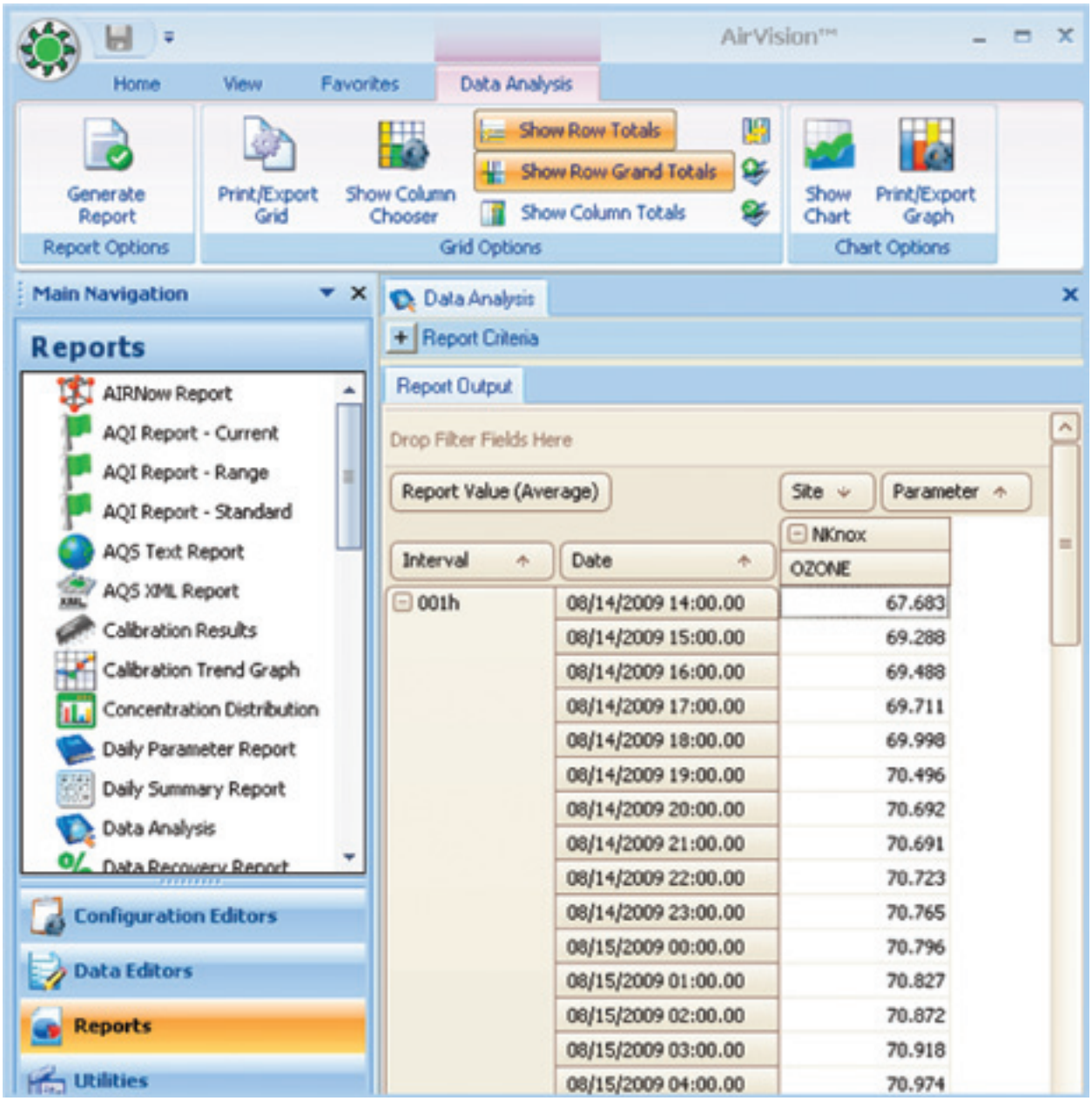


Data Analysis Tool Sample Output

Using the Data Analysis Tool (Optional)

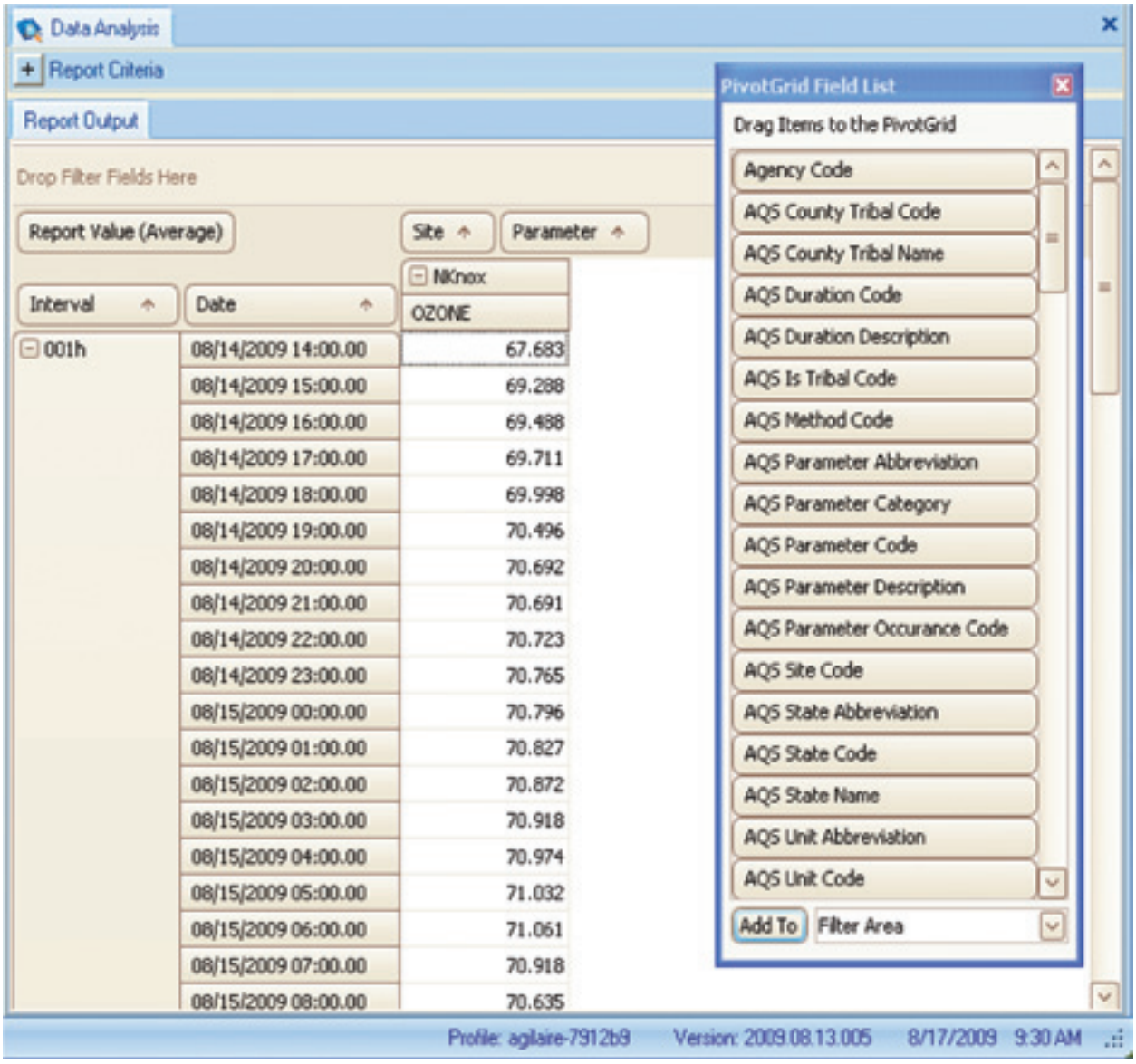
The Data Analysis Tool (**Reports** > **Data Analysis**) is an open system used to create reports and graphical summaries designed for a specific task based on categorization of the data. It is useful for creating unusual reports, for example "average ozone value on Tuesdays".

First select **Start** and **End** dates **Site/Parameter(s)**, and an **Average Interval**. The Data Analysis Tool is more useful for looking at a single parameter at a time (for one or more sites), for example, ozone for the month of August. After selecting the data range, click the **Generate Report** button on the ribbon at the top of the screen.



Data Analysis Tool from Reports menu

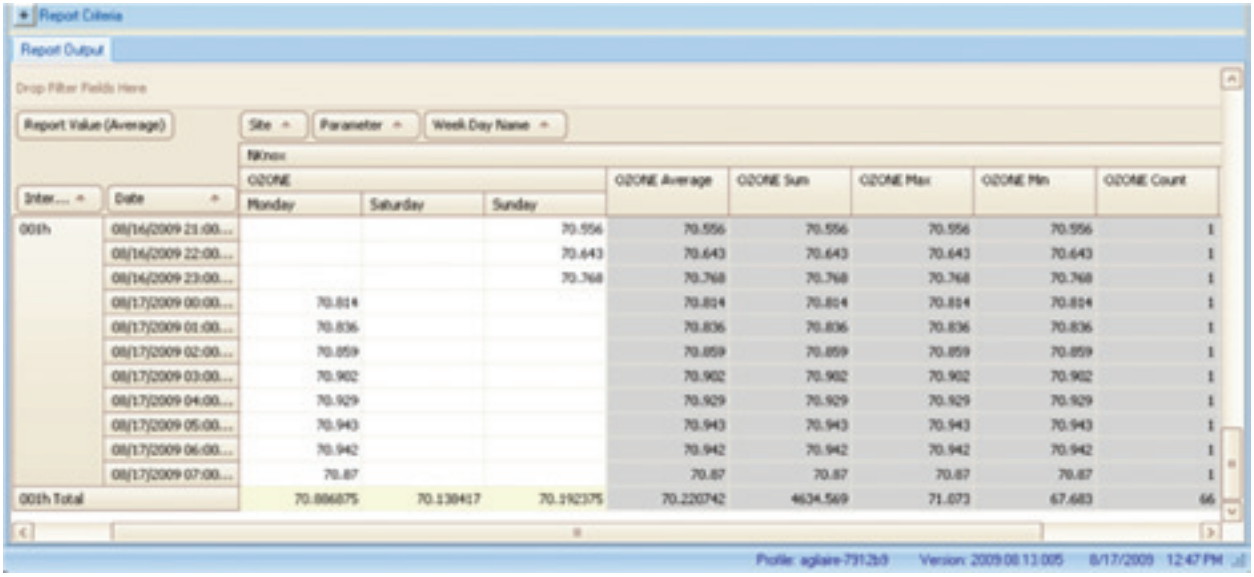
After you generate the report, you can minimize the **Report Criteria** pane to make more space for the **Report Output** section by clicking the minus sign. Notice the gray field **Drop Filter Fields Here**. Default filters are **Site**, **Parameter**, and **Report Value (Average)**. To add more **Filter Fields**, right-click in **Drop Filter Fields** area and select **Show Field List.** (or click **Show Column Choose** on the ribbon at the top of the screen .From the pop-up list you can either select and click the **Add to Filter Area** button, or click-drag to the **Drag Filter Fields Here area**.



Data Analysis Tool with pop-up Filter Field List (Reports menu)

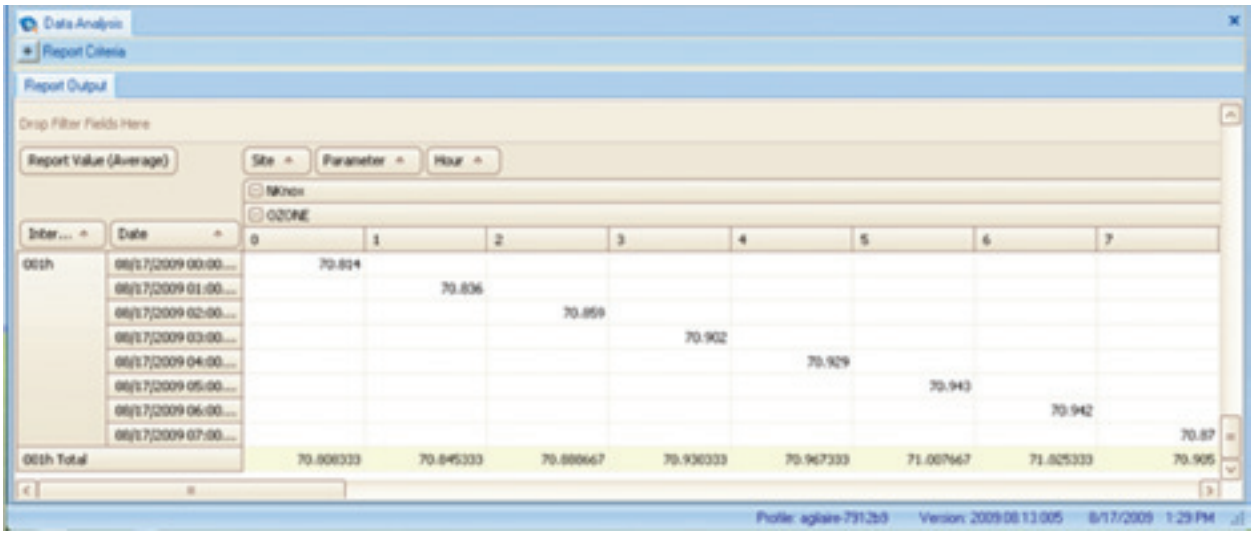
After you drag a new Filter Field to the Drop Filter Fields Here area (which is a "holding" area where fields are not active but available for immediate reactivation) the new field will not be activated until you drag it to the column area. After that the new field information will be displayed. The screen shot below shows the new Filter Field **Week Day Name**. Scroll to the bottom of the report to see Totals.

If you select **Week Day** instead of **Week Day Name**, you will get a numerically ordered display. To remove a header, right-click the header and select **Hide**. To move a header back to the inactive area, click and drag it.

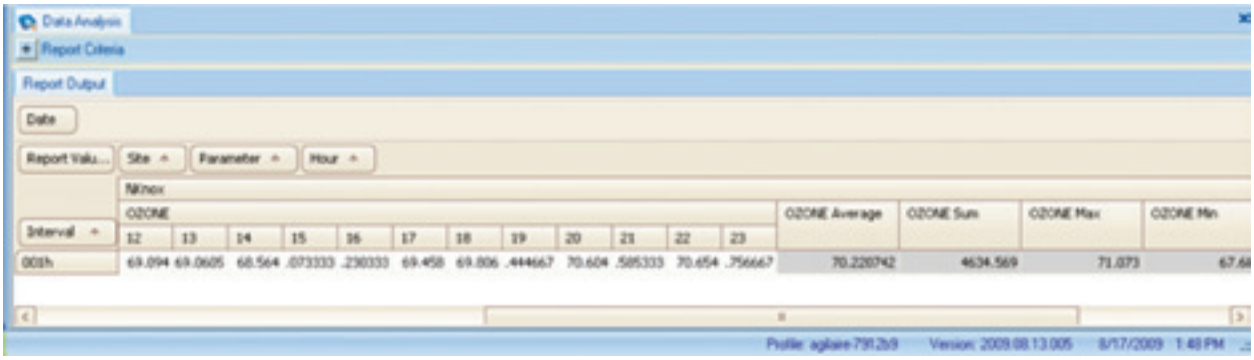


Data Analysis Tool with new Filter Field (in this example,Week Day Name) dragged to column area (Reports menu)

For example, if you select the Filter Field, you could drag the Date field up to the Drag Filter Fields Here area and deactivate the Date column.

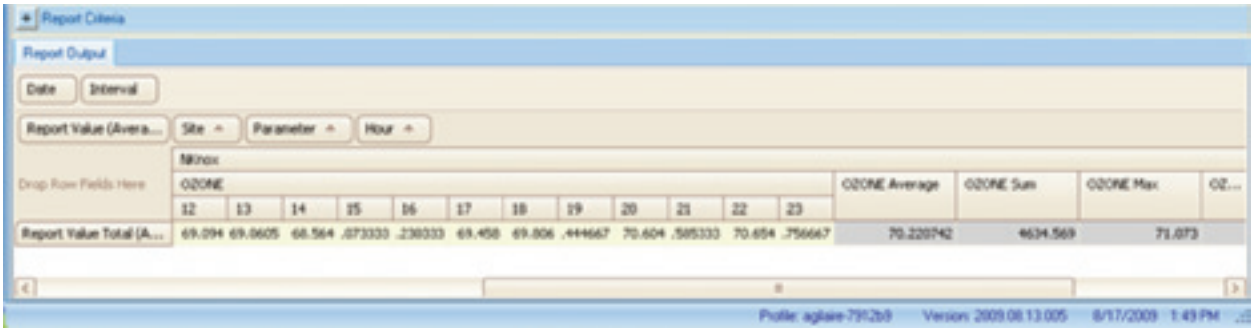


Data Analysis Tool with Hour added as a new Filter Field (Reports menu)



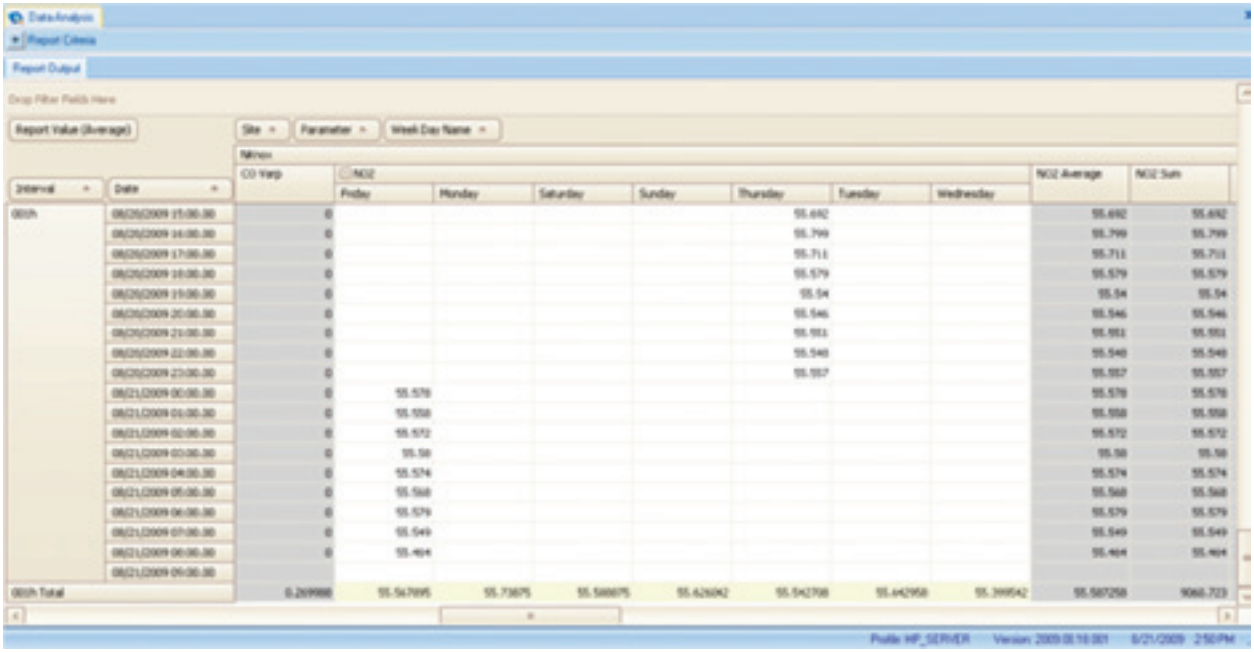
Data Analysis Tool with the Date column deactivated (Reports menu)

In these examples, only one **Interval** was selected (001h), so you could simplify the grid further by deactivating the **Interval** column, i.e., drag it to the Drop Filter Fields Here area.



Data Analysis Tool with the Date and Interval columns deactivated (Reports menu)

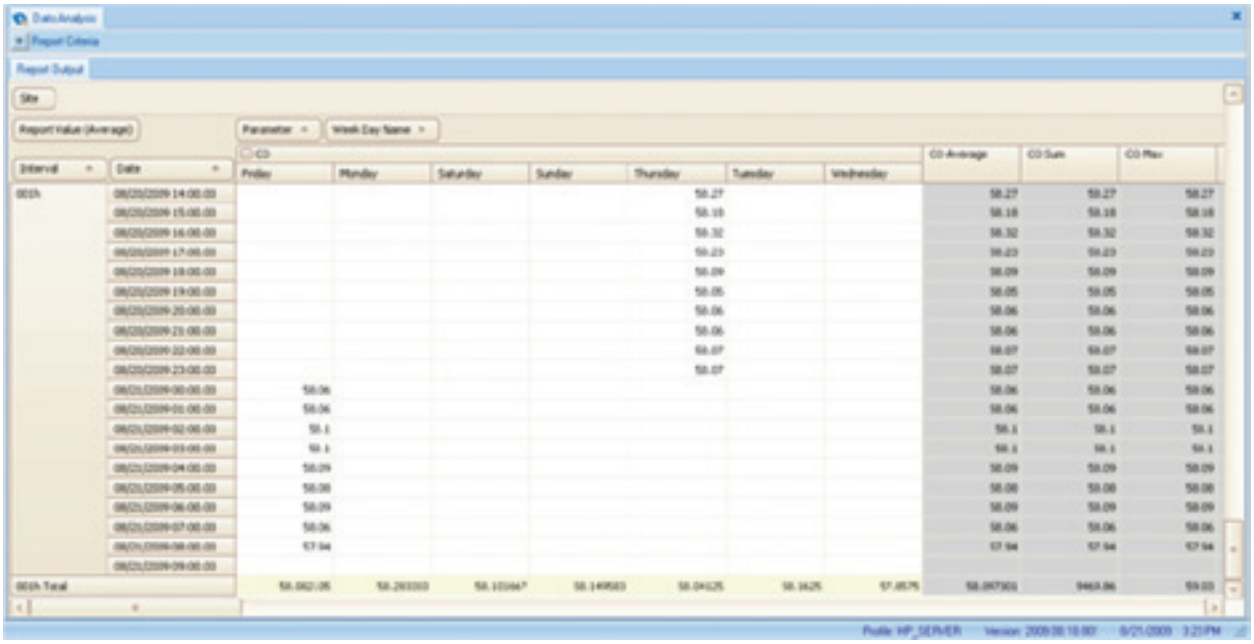
If you deactivate the Interval column (by dragging it to the Drop Filter Fields Here area), you can control how rows are displayed. For example, you could drag the **Hour** field into the **Drag Row Fields Here** area and the **Week Day Name** back into the column area.



Data Analysis Tool with the Date and Interval columns deactivated, Hour dragged into Drag Row Fields area, and Week Day Name moved back into the column area (Reports menu)

Composite statistics for a month could be broken down by hour and day of the week or you could combine data for more than one site by using filters to break down data into different categories. If you move Site back to the “holding” area, the filter will be removed and data will be grouped together, which means you won’t have to scroll to see a second site.

Similarly, multiple parameters could be grouped or merged, for example when ozone parameters go by different names.



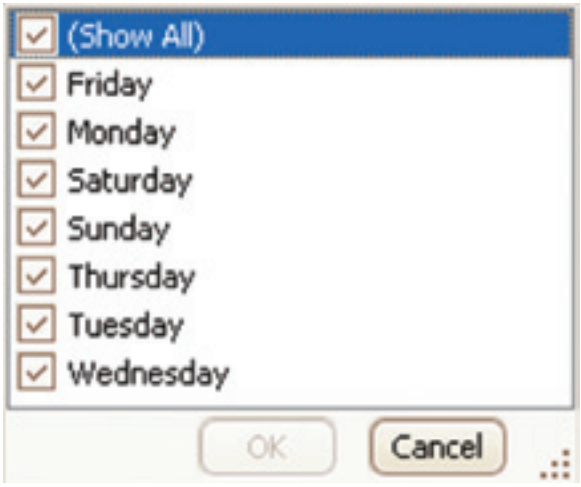
Data Analysis Tool with the Date and Interval columns deactivated, Hour dragged into Drag Row Fields area, Week Day Name moved back into the column area, and Site moved into “holding” area (Reports menu)

You can manipulate the way data is displayed in Data Analysis Report further as follows:

- With the cursor over a Filter name, click the small up or down arrow to change the sort order of that Filter.
- Hover the cursor over a Filter name and click the small filter icon that appears in the upper right corner. to open a pop-up list of each aspect of the Filter. In this example, you could remove weekend days from analysis; if Hour was selected as a filter, you could toggle settings to include only commuting hours.

  If you left-click Report Value, you can select from the following options: Count, Sum, Min, Max, Average (the default), StdDev, StdDevp, Var, Varp, and Custom. Changing this selection can be helpful for answering questions like "What is the highest value for Monday, 9 a.m. for the entire year?"

Filter name showing arrow and filter icon



Display names for Week Day Name

Saving Grid Layouts as Favorites

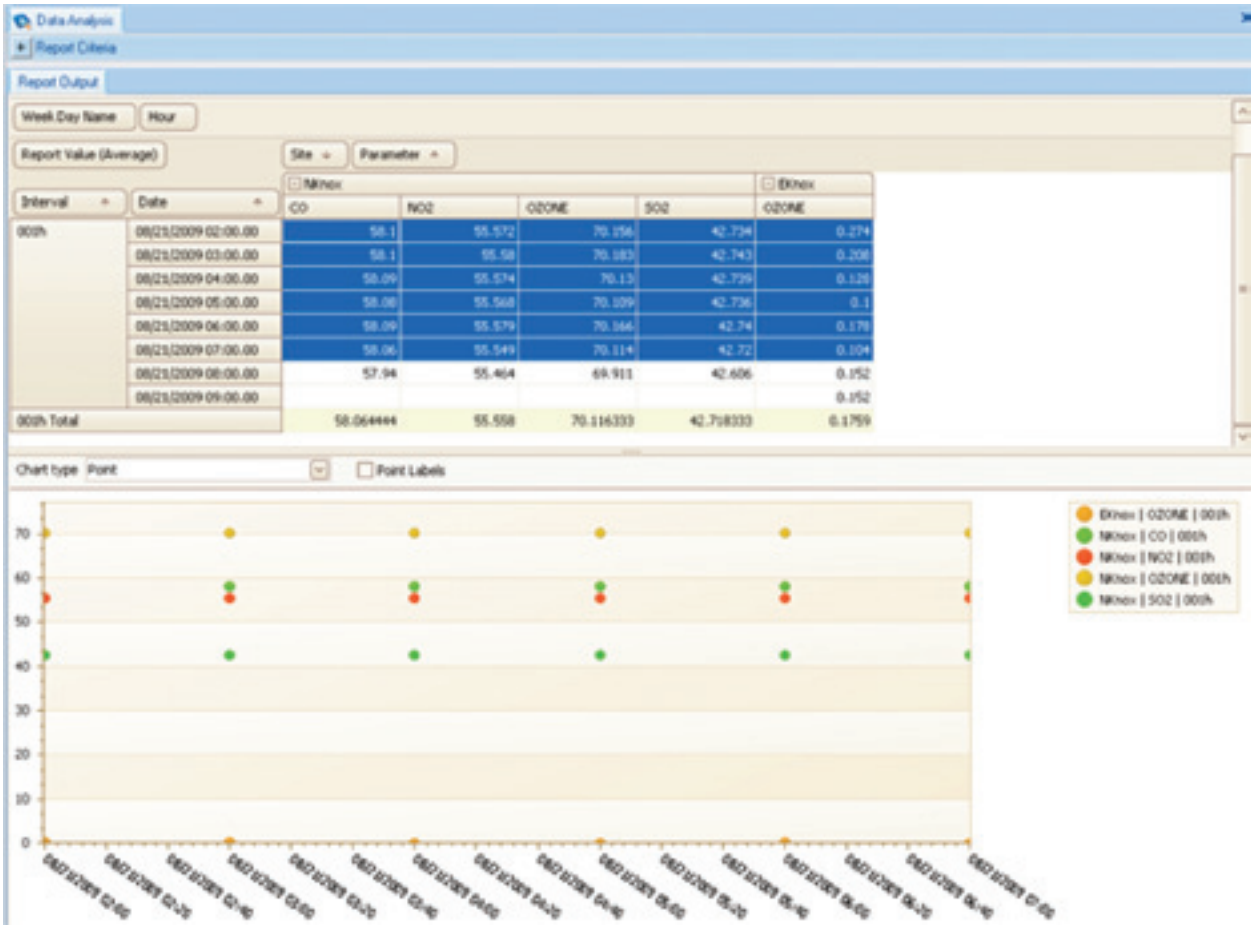
The Favorites editor only saves the data query itself, not the changes in filters. To save an analysis layout, click **Save Grid Layout** or **Apply Grid Layout** on the ribbon at the top of the screen.

Save Grid Layout and Apply Grid Layout buttons in the ribbon at the top of the Data Analysis Report screen

Chart Display

To display the data analysis report as a chart, click the Show Chart button in the ribbon at the top of the page and select a row, column, or range of cells. The following figure shows a Point graph by Hour.

The Bar graph (shown earlier) is generally well-suited for any data selection.



Data Analysis report displaying data as a Point graph

Maximum Hourly Averages Report

The Maximum Hourly Averages report provides the 'N' highest averages for any parameter for any time range, list of sites, etc. You can define the number of maximum readings, whether multiple maximums are allowed in the same day, an optional rolling average duration, and other parameters for the calculation of the maximums.

Current Date : 5/8/2009
Current Time : 12:49 PM

Maximum Hourly Averages Report

Site: SITEONE
Avg Interval: 1 Hour

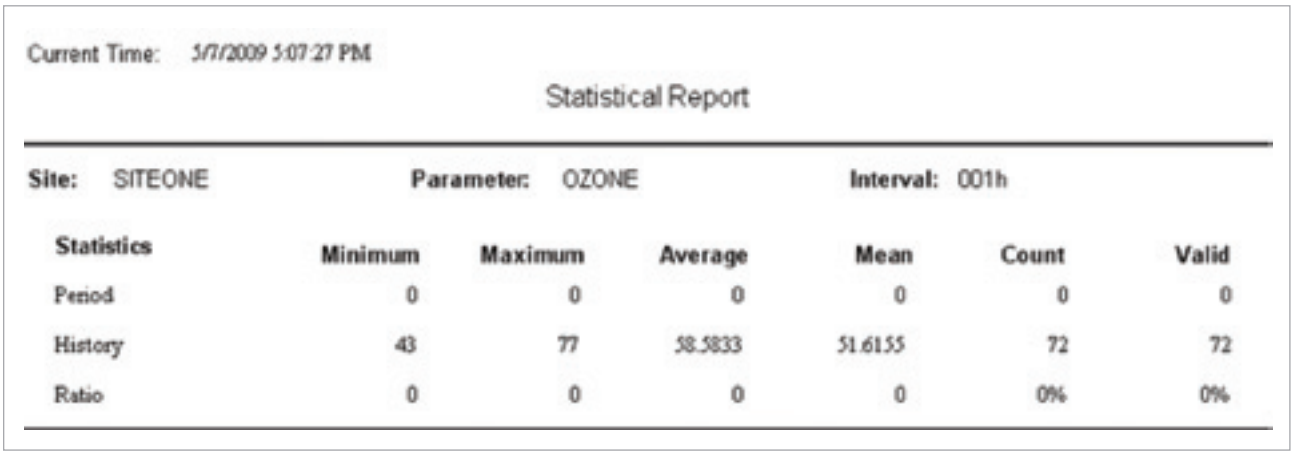
Parameter: OZONE
Units: PPB
Avg Type: Backward

Rank	Average	Date	Hour
1	99	07/19/2008	20
2	96	07/18/2008	2
3	89	08/13/2008	19
4	88	07/20/2008	3
5	86	05/24/2008	23

Maximum Hourly Averages Report

Statistical Report

Statistical reports provide statistics for any defined time range, as well as a comparison against previous years of the same parameter and date/time range, with calculated ratios. This report is similar to the Statistical functions in the Data Editor and used to identify data that lies outside the norm.



Current Time: 5/7/2009 5:07:27 PM

Statistical Report

Site: SITEONE **Parameter:** OZONE **Interval:** 001h

Statistics	Minimum	Maximum	Average	Mean	Count	Valid
Period	0	0	0	0	0	0
History	43	77	58.5833	51.6155	72	72
Ratio	0	0	0	0	0%	0%

Statistical Report

USEPA / Public Health Reports

AIRNow Report

AIRNOW creates a report of data values in AIRS format that is sent via FTP to the EPA. Before an AIRNow Report can be generated in AirVision, the **Agency Code** must be entered in **Configuration Editors>Site/Parameter** by double-clicking the **System** icon. The Agency Code is provided by EPA.

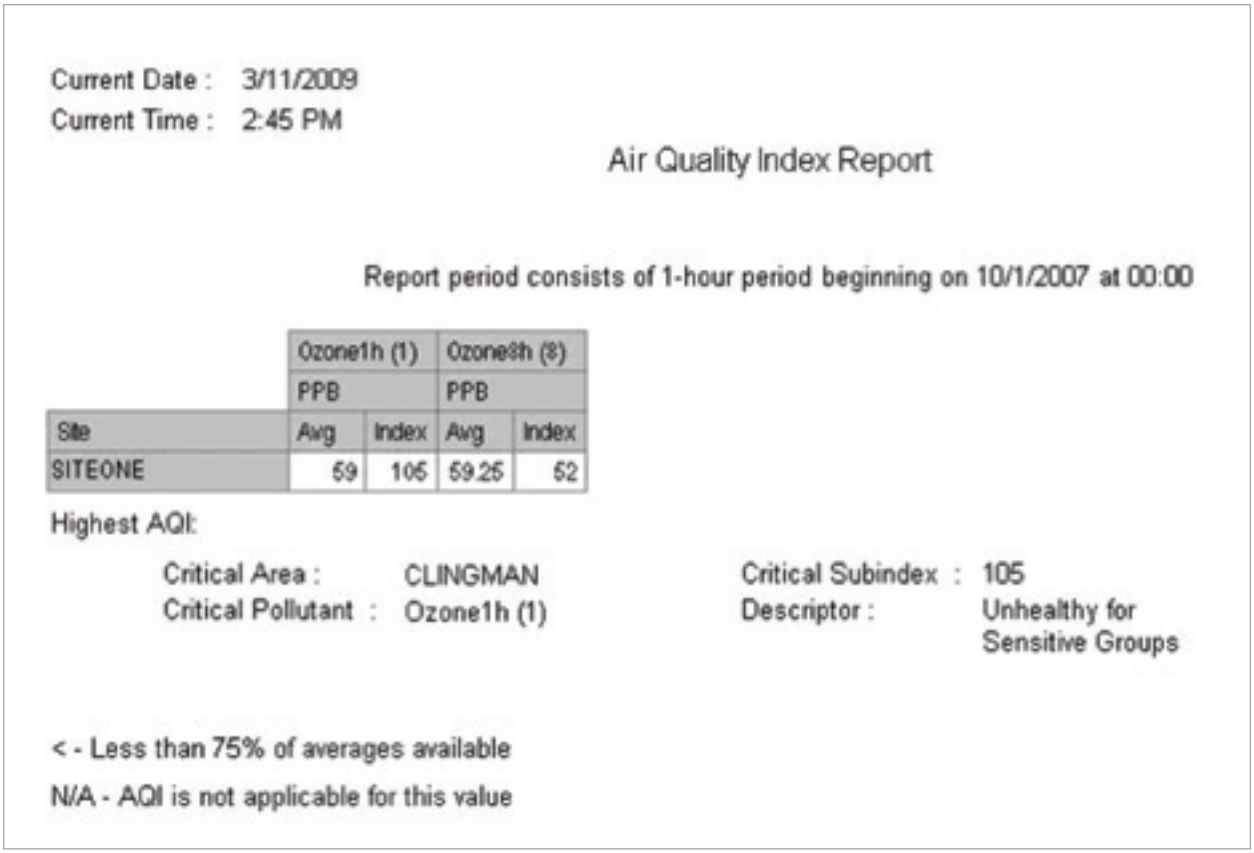
Report Output

```
BEGIN_FILE
FORMAT_VERSION,2
AGENCY,0581
FILENAME,101922.0581
DATA_VERSION,201010192225
TZONE,EST,5
BEGIN_GROUP
VARIABLE,OZONE
DATA_TYPE,POINT
MEASUREMENT_TYPE,SAMPLE
CHARACTERISTIC,OBSERVED
START_DTG,201010190000
END_DTG,201010192359
INTERVAL,60
START_REF,0
NUMSTEPS,24
AVG_TIME,60
UNITS,PPB
STATIONS,1
BEGIN_DATA
Agilaire            ,4709321,3,3,3,3,3,3,3,3,3,3,-999,-999,-999,-999,-999,-999,-999,-999,-999,-999,-999,-999,-999,-999
Agilaire            ,4709321,G,G,G,G,G,G,G,G,G,G,M,M,M,M,M,M,M,M,M,M,M,M,M,M
END_DATA
END_GROUP
END_FILE
```

AIRNow Report

AQI-- Current

The AQI Current report provides the current Air Quality Index (AQI) for any defined date/hour for the defined site(s).



Current Date : 3/11/2009
Current Time : 2:45 PM

Air Quality Index Report

Report period consists of 1-hour period beginning on 10/1/2007 at 00:00

	Ozone1h (1)		Ozone8h (8)	
	PPB		PPB	
Site	Avg	Index	Avg	Index
SITEONE	59	105	59.25	52

Highest AQI:

Critical Area : CLINGMAN
Critical Pollutant : Ozone1h (1)
Critical Subindex : 105
Descriptor : Unhealthy for Sensitive Groups

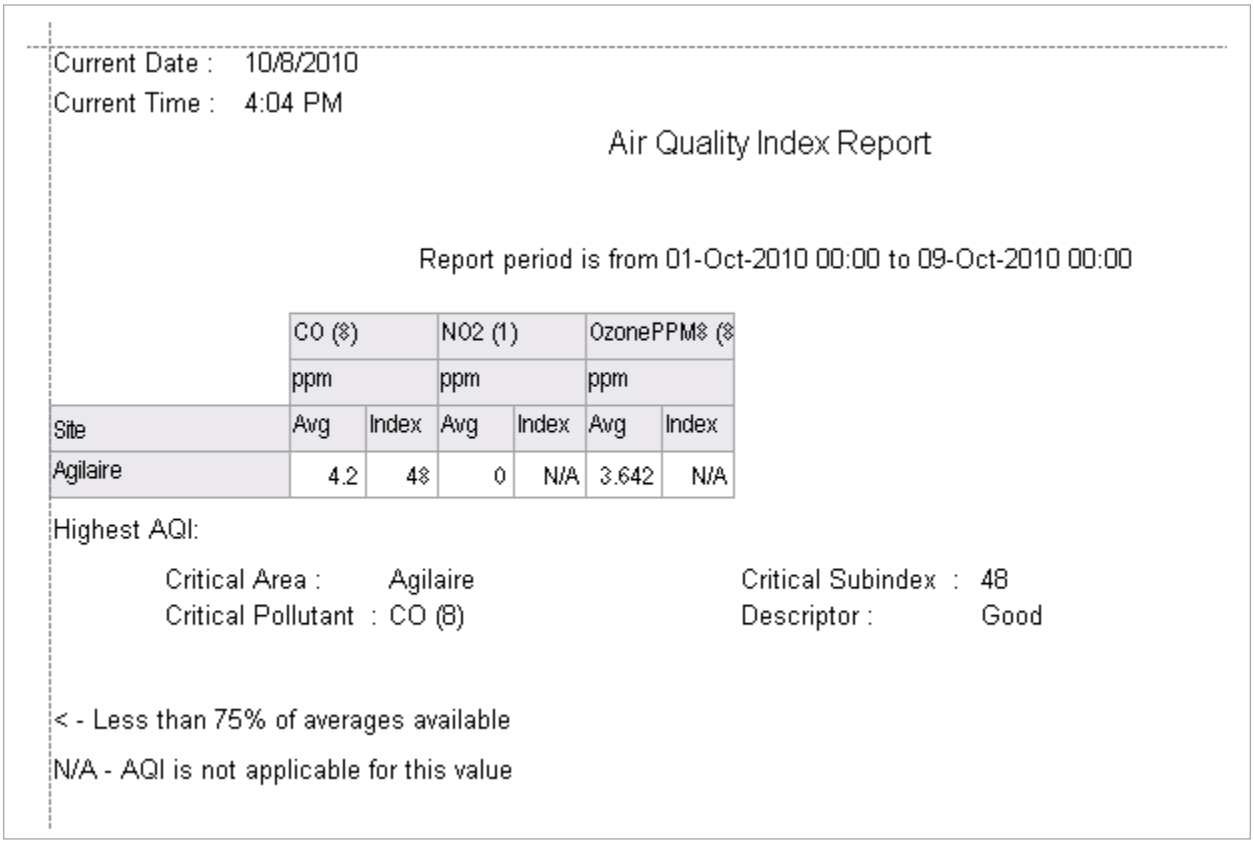
< - Less than 75% of averages available

N/A - AQI is not applicable for this value

AQI--Current

AQI Report--Range

The AQI Range report provides the current Air Quality Index (AQI) for any date range.



Current Date : 10/8/2010
Current Time : 4:04 PM

Air Quality Index Report

Report period is from 01-Oct-2010 00:00 to 09-Oct-2010 00:00

	CO (8)		NO2 (1)		OzonePPM8 (8	
	ppm		ppm		ppm	
Site	Avg	Index	Avg	Index	Avg	Index
Agilaire	4.2	48	0	N/A	3.642	N/A

Highest AQI:

Critical Area : Agilaire
Critical Pollutant : CO (8)
Critical Subindex : 48
Descriptor : Good

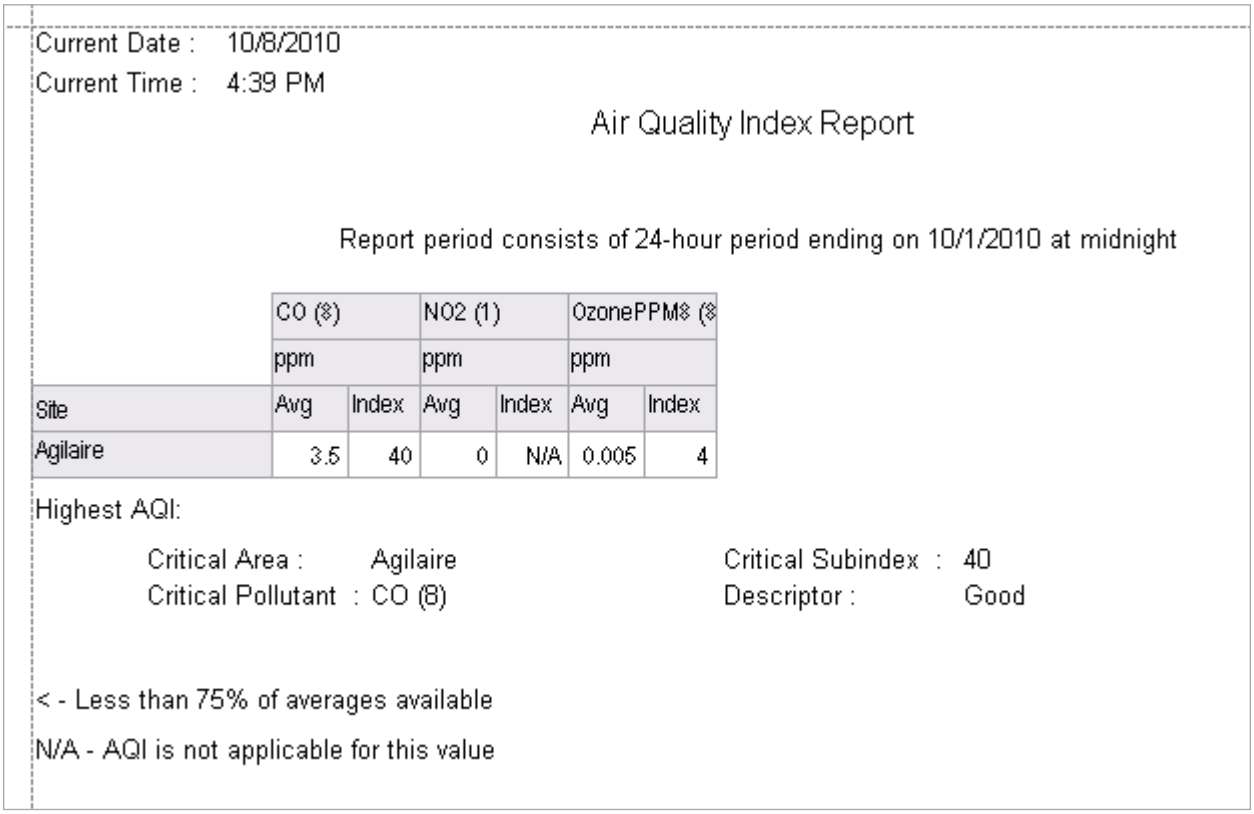
< - Less than 75% of averages available

N/A - AQI is not applicable for this value

AQI--Range

AQI Report--Standard

The AQI Standard report provides the current Air Quality Index (AQI) for any defined 24 hour period for the selected site(s).



Current Date : 10/8/2010
Current Time : 4:39 PM

Air Quality Index Report

Report period consists of 24-hour period ending on 10/1/2010 at midnight

	CO (8)		NO2 (1)		OzonePPM8 (8	
	ppm		ppm		ppm	
Site	Avg	Index	Avg	Index	Avg	Index
Agilaire	3.5	40	0	N/A	0.005	4

Highest AQI:

Critical Area : Agilaire
Critical Pollutant : CO (8)
Critical Subindex : 40
Descriptor : Good

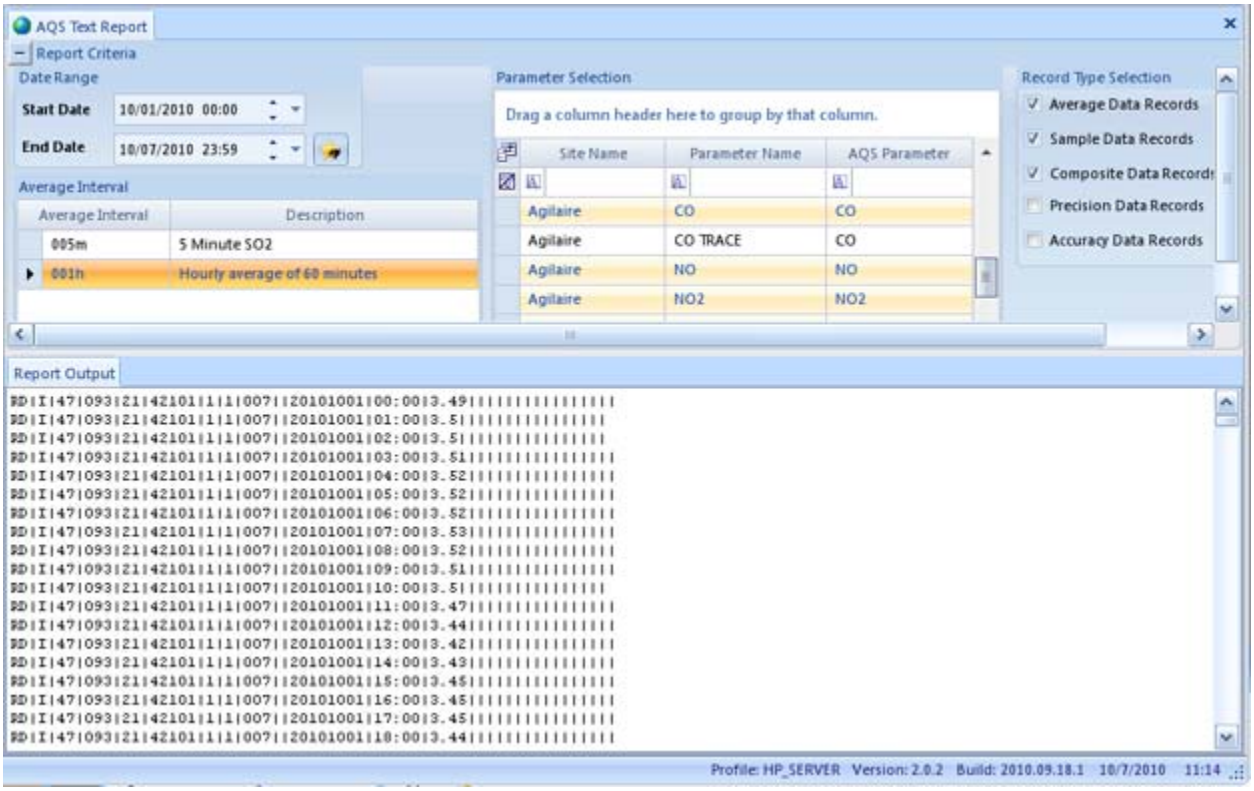
< - Less than 75% of averages available

N/A - AQI is not applicable for this value

AQI--Standard

AQS (Text) Report

AQS Text Reports provide formatted data for transmission to USEPA in AQS (Re-Engineered AIRS) format. Select a **Date Range**, an **Average Interval**, **Site(s)**, **Parameter(s)**, and **Record Type(s**): **Average Data Record**, **Sample Data Record**, **Composite Data Record**, **Precision Data Records,** and/or **Accuracy Data Records**.



AQS Text Report (Reports>AQS Text Report)

AQS (XML 2.0) Report

AQS XML 2.0 Reports provide formatted data for transmission to USEPA in AQS XML (Version 2.0) format. You have the option to select which Record Types you want to run: Average Data Record, Sample Data Record, Composite Data Record, Precision Data Records, and Accuracy Data Records.

AQS XML Report

AQS Reports

Precision Reporting for Gases

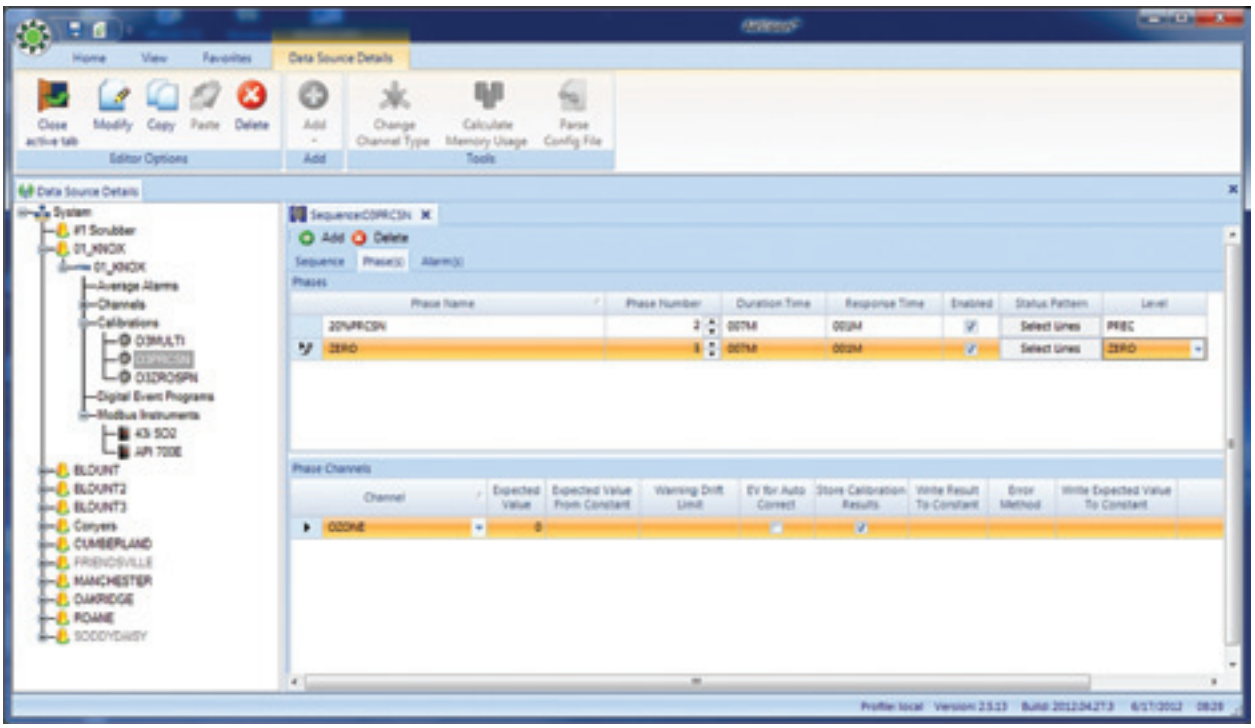
AirVision has the capability to generate precision (RP) records for calibrations that have been marked in the calibration record as a precision point. To accomplish this, a new field has been added to the Calibration Phase configuration and in the Calibration Data database to denote precision records.

To use this feature, use Data Source Details->Logger->Calibrations->Phase, and use the PhaseType field on the far right to denote the phase as a PREC phase. Other phases can be marked as ZERO, SPAN, etc if desired.

This will allow AirVision to mark future calibration records as precision points in the database. It will not affect older calibration records that have already been collected. However, those records can be adjusted using Editors->Calibration Data

This function can also be used to 'unmark' or 'invalidate' bad precision runs so they are not reported in AQS.

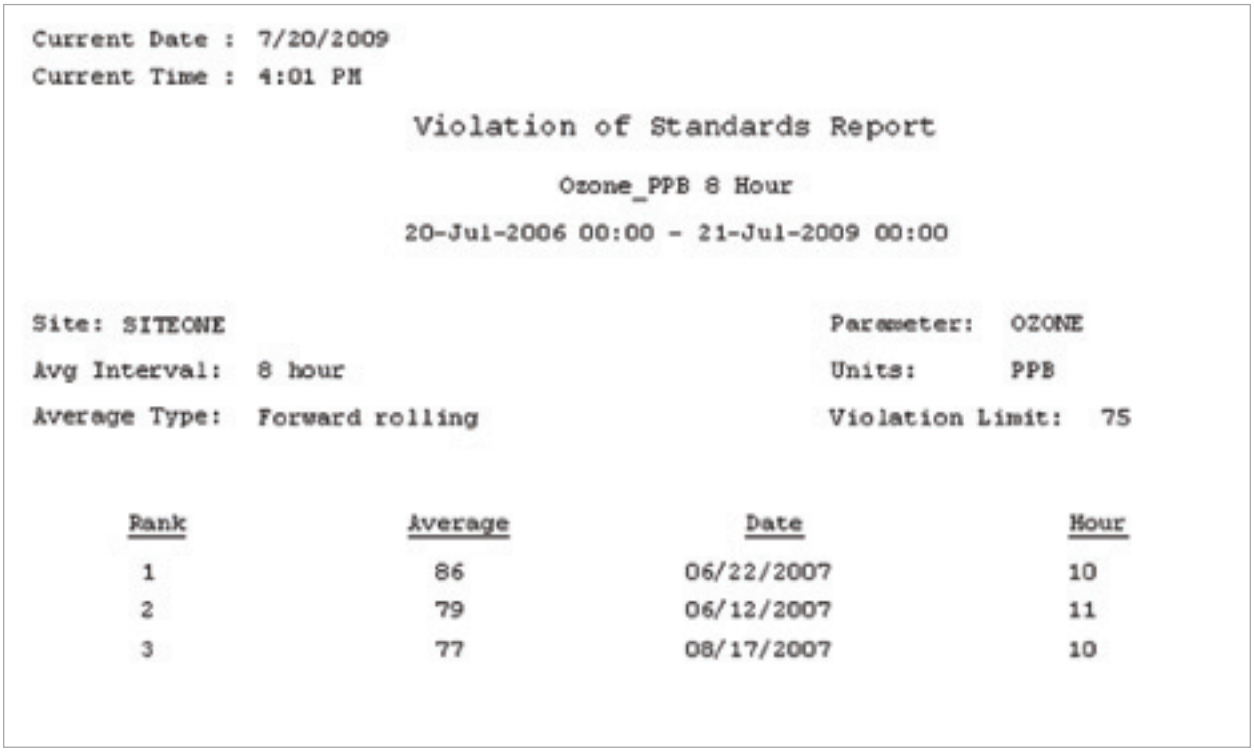
Once collected and marked as PREC records, the AQS Reports (Text or XML) can be used to generate the desired records:



Violation of Standards Report

Violation of Standards Reports provide a list of time periods where user-defined standards were violated. The user defines the violation limits and calculation methods (hourly, multi-hour, or USEPA annual standards) using the Violation of Standards configuration editor.

Version 2.4 of AirVision includes SO2 NAAQS calculation in the Violation of Standards Report, which offers USEPA SO2 NAAQS calculation (requires multiple years of data to run).



Current Date : 7/20/2009
Current Time : 4:01 PM

Violation of Standards Report

Ozone_PPB 8 Hour

20-Jul-2006 00:00 - 21-Jul-2009 00:00

Site: SITEONE Parameter: OZONE
Avg Interval: 8 hour Units: PPB
Average Type: Forward rolling Violation Limit: 75

Rank	Average	Date	Hour
1	86	06/22/2007	10
2	79	06/12/2007	11
3	77	08/17/2007	10

Violation of Standards Report

Meteorological Report

The **Meteorological Report** shows meteorological data, such as wind direction, wind speed, temperature, rainfall, relative humidity, and stability class (based on lateral turbulence and wind speed method). Each site is shown separately for each day.

Current Time: 4:06 PM

Meteorological Report

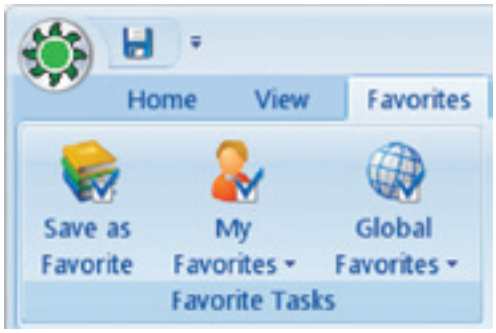
Site: Agilaire 10/19/2010 Interval 001h

Hour	CO PPM	CO TRACE PPM	NO PPM	NO2 PPM	NOX PPM	OZONE PPM	PM25LC UG/M3	RELHUM PERCENT	SIGTHETA DEG	SOLARRAD W/M2	SWSP MPH
00:00	2.53	0.51615297	0.004	0.002	0.004	0.003	0.5	3.8	0.0618669	2429	5.3
01:00	2.54	0.51642673	0.004	0.002	0.004	0.003	0.5	3.8	0.0662529	2435	5.3
02:00	2.56	0.5174868	0.004	0.002	0.005	0.003	0.5	3.8	0.06936221	2442	5.3
03:00	2.57	0.5179669	0.004	0.002	0.005	0.003	0.5	3.8	0.0658896	2449	5.4
04:00	2.58	0.51914472	0.004	0.002	0.005	0.003	0.5	3.9	0.0637863	2456	5.4
05:00	2.59	0.5195084	0.004	0.002	0.005	0.003	0.5	3.9	0.06524794	2460	5.4
06:00	2.6	0.5199635	0.004	0.002	0.005	0.003	0.5	3.9	0.0635875	2463	5.4
07:00	2.61	0.5208531	0.004	0.002	0.005	0.003	0.5	3.9	0.0648449	2466	5.4
08:00	2.61	0.5208415	0.004	0.002	0.005	0.003	0.5	3.9	0.06375158	2465	5.4
09:00	2.57	0.5188478	0.004	0.002	0.005	0.003	0.5	3.9	0.0611069	2454	5.4
10:00	2.54	0.51654772	0.004	0.002	0.004	0.003	0.5	3.8	0.0623034	2434	5.3
11:00	2.52	0.51573122	0.004	0.002	0.004	0.003	0.5	3.8	0.0625146	2424	5.3
12:00	2.5	0.51442947	0.004	0.002	0.004	0.003	0.5	3.8	0.06098855	2412	5.3
13:00	2.49	0.51315557	0.004	0.002	0.004	0.003	0.5	3.8	0.0582332	2406	5.3
Max	2.61	0.5208531	0.004	0.002	0.005	0.003	0.5	3.9	0.06936221	2466	5.4
Min	2.49	0.51315557	0.004	0.002	0.004	0.003	0.5	3.8	0.0582332	2406	5.3
Sigma	0.03	0	0	0	0	0	0	0	0	19	0
Average	2.55	0.5	0.004	0.002	0.004	0.003	0.5	3.8	0	2442	5.3
Good	14	14	14	14	14	14	14	14	14	14	14

Meteorological Report (Reports Menu)

Favorites

AirVision simplifies regular tasks with a list of user-defined **Favorites**, which function like Favorites in Internet browsers, such as Internet Explorer. You can save a selection of sites, parameters, average intervals, and date ranges for the **Average Data Editor** or any **Data Report**.



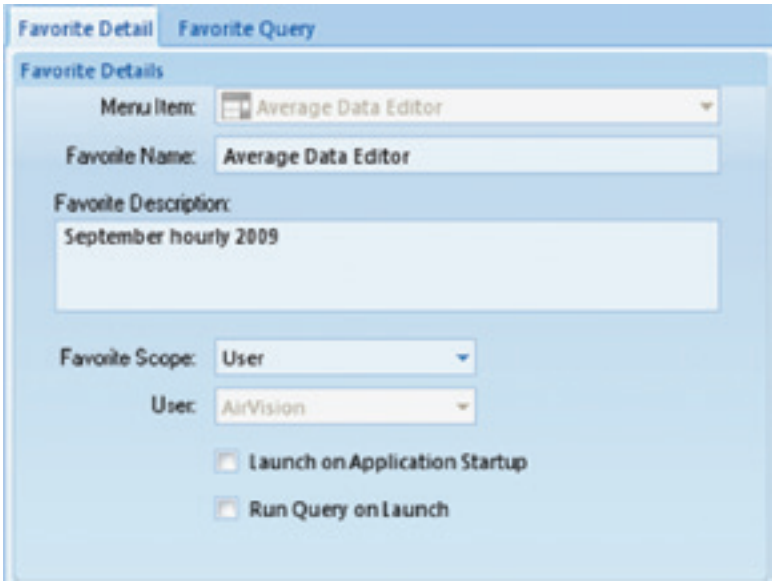
Favorites menu

Favorites can be saved as a global favorite for all users, or as a favorite for an individual user. To create a favorite, go into any data editor or report, complete a query, and select **Favorites** from the top menu. The ribbon bar will change to show the favorites menu.

Select **Save as Favorite** to bring up the **Add a Favorite** screen.

Give the favorite a name, a description (optional), and select **User** or **All Users** (global) and select from the following options:

- **Launch on Application Startup** to run the Favorite upon logging in to AirVision.
- **Run Query on Launch** to execute data retrieval when the Favorite is selected.

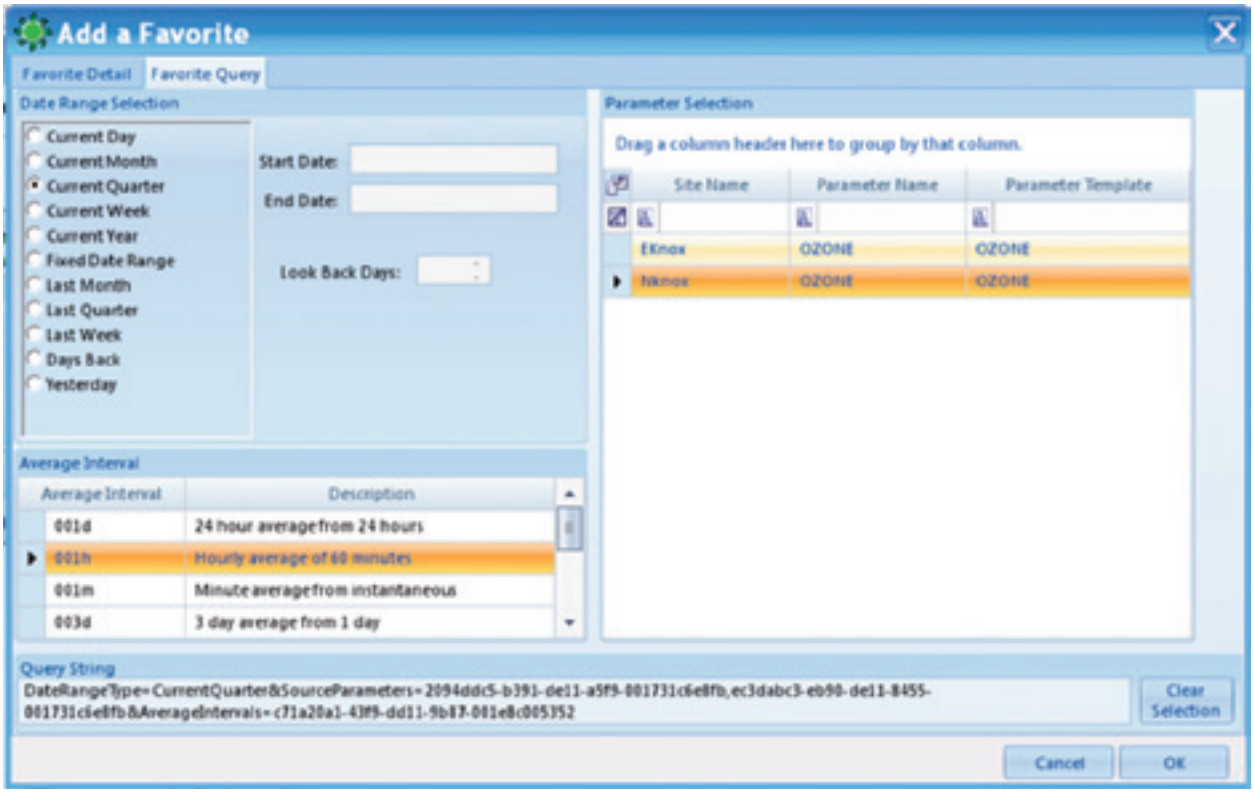


Add a Favorite screen

You can also configure the **Favorite** by selecting the **Favorite Query** tab after you select **Save as Favorite**. From this screen you can adjust the site/parameter list, date range, or average interval. These values can also be adjusted later in the **Favorites Editor** in the **Configuration menu**.

To return to the ribbon controlling the current application, select the top menu function (above the ribbon), for example, Average Data Editor.

To use an existing Favorite, select **Favorites** from the top menu (above the ribbon bar), select **User Favorite** or **Global Favorites**, and the saved **Favorite**.



Favorite Query tab from Add a Favorite

Chapter 4

Data Editors

add new Data Editors menu options Annotate Data, Batch Reading Updater, Calibration Adjust Tool, (Please indicate correct order-K)

Air Vision provides the following Data Editors:

- Average Data Editor
- Sample Data Editor
- Calibration Data Editor
- Logbook Entry Editor
- Annotate Data
- Batch Reading Updater
- Calibration Adjust Tool

~~DONE~~
fix 'Calculation Data Editor' - should be 'Calibration Data Editor',

remove 'Lock/Unlock Data' as an editor as its not its own menu item

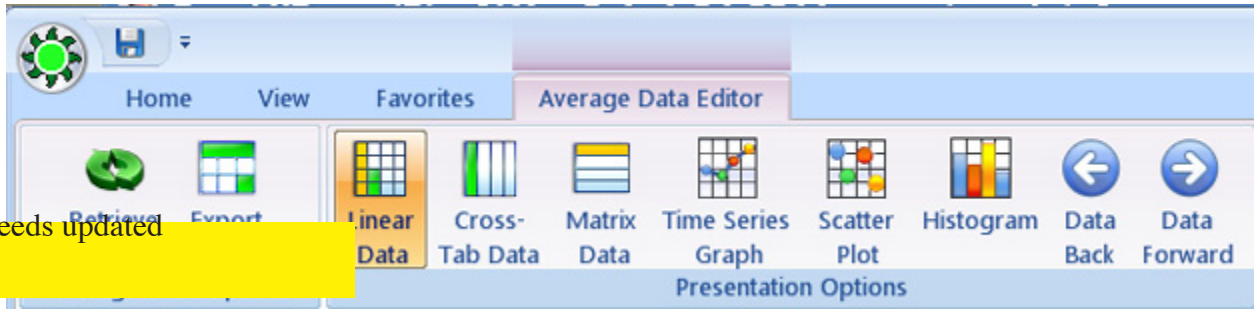
Average Data Editor

The AirVision **Average Data Editor** (**Data Editors** > **Average Data Editor**) combines multiple functions into a single tool:

- Editing details of data points
- Batch editing
- Comparison of current data with historical minimum, maximum, and mean
- Analyze/Exported

In addition, you can toggle between the following six formats by clicking buttons in the ribbon at the top of the screen:

- Linear Table (the default display)
- Cross Tab Table
- Matrix Table
- Time Series Graph (can be used for single or multiple parameters, but the historical comparison tools in this X-Y scatter plot only appear in single- parameter queries)
- Scatter Plot graph (requires queries of two or more parameters)
- Histogram (for single parameter queries)



screenshot needs updated

Ribbon bar to toggle between Data Editor displays; arrows to scroll backward and forward through data

To edit data in the **Average Data Editor** (**Data Editors** > **Average Data Editor**), enter

- **Start** and **End Date** (type dates or use arrow keys to select)
- **Average Interval** (for example, 001h Hourly average of 60 minutes)
- **Parameter Selection** (for example, **Site Name** NKNOX, **Parameter Name** NO2, **Parameter Template** NO2)
- Click the **Retrieve Data** button in the ribbon at the top of the screen

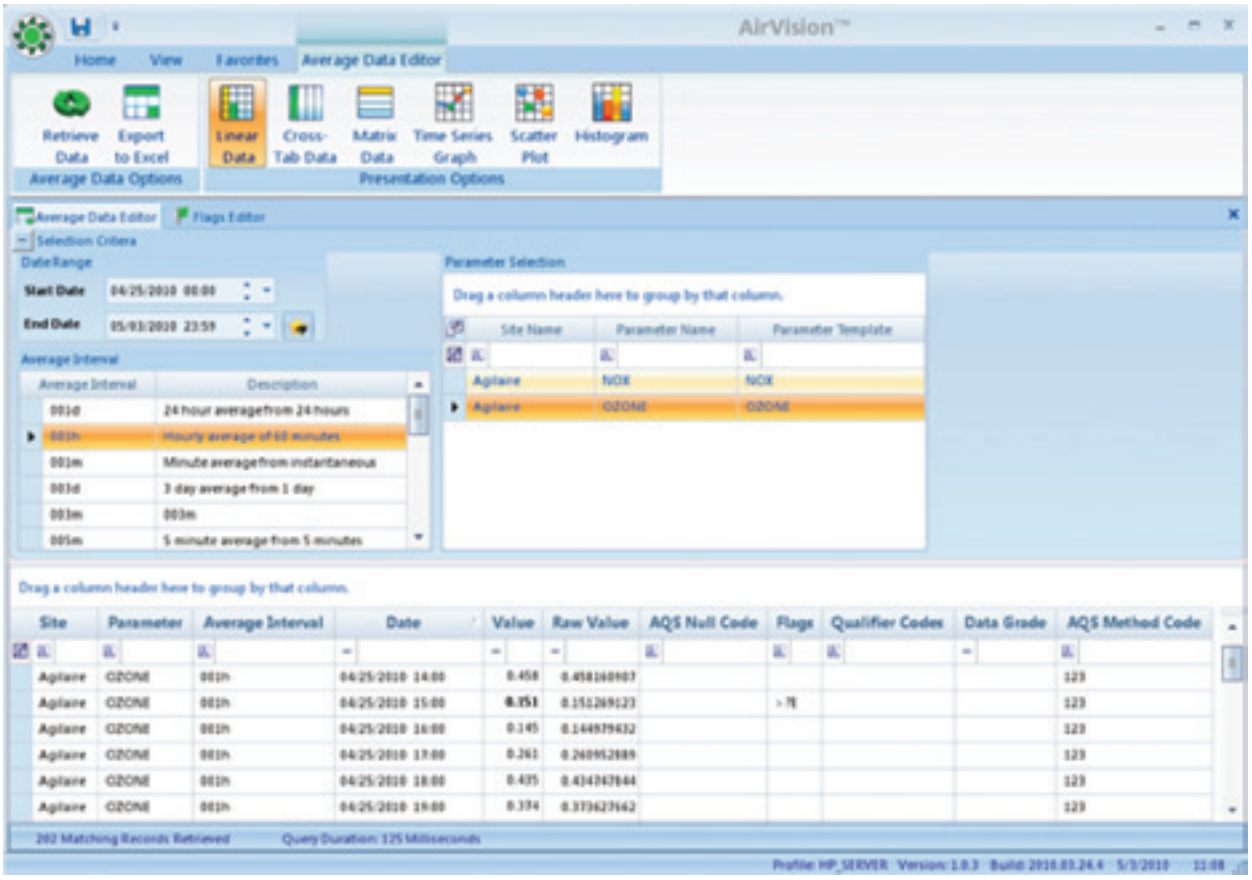
The Average Data Editor will open the **Linear Data Editor** by default. Click buttons in the ribbon to change formats. Click the **Data Back** or **Data Forward** button to jump scroll to either the previous or following data set. For example, if your initial query was for a week of data, the scroll buttons will take you backward or forward to a week of data.

Linear Data Editor

The Linear Data Editor allows access to all major database fields, displaying :

- Site Name, Parameter Name, Parameter Template Name
- Average Interval
- Start and End Dates
- Value (Hover the mouse pointer over data values to see any annotations.)
- Raw Value (can't be edited)
- AQS Null Codes
- Data Logger Flags
- Qualifier Codes
- AirVision Data Grade (used by ADVP).

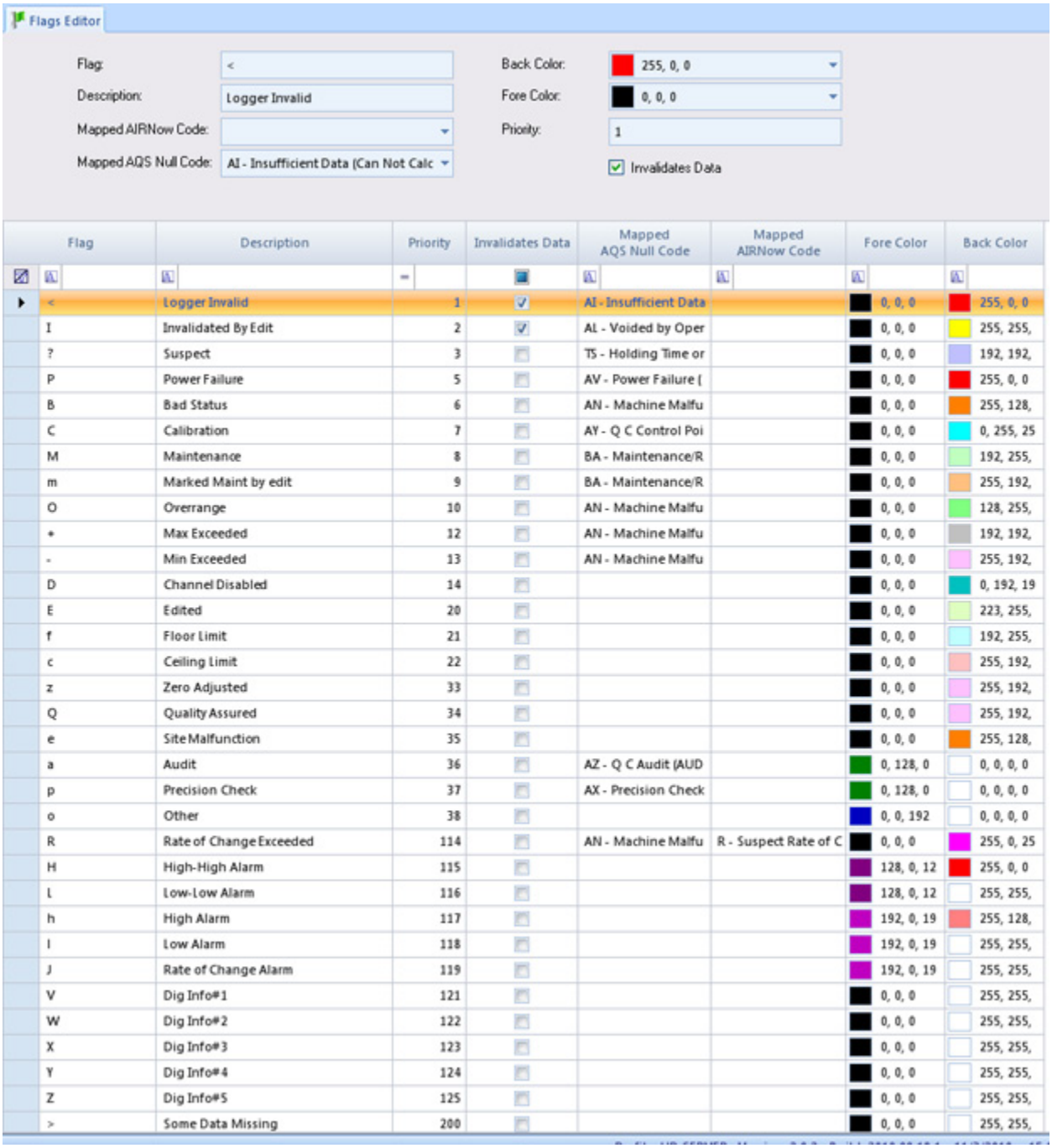
To edit data values, double-click in the Value cell or right-click to bring up a pop-up menu.



Average Data Editor from Data Editors menu

Cell Color Codes in Flags Editor

All data is color-coded based on the flag-to-color mappings listed in the **Flags Editor**. AirVision is loaded with some default mappings, but you can customize this for your system. The color mappings are global to all users for consistency.



Flag	Description	Priority	Invalidates Data	Mapped AQS Null Code	Mapped AIRNow Code	Fore Color	Back Color
<	Logger Invalid	1	☑	AI - Insufficient Data		0, 0, 0	255, 0, 0
I	Invalidated By Edit	2	☑	AL - Voided by Oper		0, 0, 0	255, 255,
?	Suspect	3	☐	TS - Holding Time or		0, 0, 0	192, 192,
P	Power Failure	5	☐	AV - Power Failure [		0, 0, 0	255, 0, 0
B	Bad Status	6	☐	AN - Machine Malfu		0, 0, 0	255, 128,
C	Calibration	7	☐	AY - Q C Control Poi		0, 0, 0	0, 255, 25
M	Maintenance	8	☐	BA - Maintenance/R		0, 0, 0	192, 255,
m	Marked Maint by edit	9	☐	BA - Maintenance/R		0, 0, 0	255, 192,
O	Overrange	10	☐	AN - Machine Malfu		0, 0, 0	128, 255,
*	Max Exceeded	12	☐	AN - Machine Malfu		0, 0, 0	192, 192,
-	Min Exceeded	13	☐	AN - Machine Malfu		0, 0, 0	255, 192,
D	Channel Disabled	14	☐			0, 0, 0	0, 192, 19
E	Edited	20	☐			0, 0, 0	223, 255,
f	Floor Limit	21	☐			0, 0, 0	192, 255,
c	Ceiling Limit	22	☐			0, 0, 0	255, 192,
z	Zero Adjusted	33	☐			0, 0, 0	255, 192,
Q	Quality Assured	34	☐			0, 0, 0	255, 192,
e	Site Malfunction	35	☐			0, 0, 0	255, 128,
a	Audit	36	☐	AZ - Q C Audit (AUD		0, 128, 0	0, 0, 0, 0
p	Precision Check	37	☐	AX - Precision Check		0, 128, 0	0, 0, 0, 0
o	Other	38	☐			0, 0, 192	0, 0, 0, 0
R	Rate of Change Exceeded	114	☐	AN - Machine Malfu	R - Suspect Rate of C	0, 0, 0	255, 0, 25
H	High-High Alarm	115	☐			128, 0, 12	255, 0, 0
L	Low-Low Alarm	116	☐			128, 0, 12	255, 255,
h	High Alarm	117	☐			192, 0, 19	255, 128,
l	Low Alarm	118	☐			192, 0, 19	255, 255,
J	Rate of Change Alarm	119	☐			192, 0, 19	255, 255,
V	Dig Info#1	121	☐			0, 0, 0	255, 255,
W	Dig Info#2	122	☐			0, 0, 0	255, 255,
X	Dig Info#3	123	☐			0, 0, 0	255, 255,
Y	Dig Info#4	124	☐			0, 0, 0	255, 255,
Z	Dig Info#5	125	☐			0, 0, 0	255, 255,
>	Some Data Missing	200	☐			0, 0, 0	255, 255,

Flags Editor in Configuration Editors

In addition, AirVision uses two font changes to represent data in the data editor:

- **Bold** values represent data that does not match the raw database (edited values)
- Italics values represent data that has an annotation. Hover the mouse pointer over data values to see details of annotations.

Right-Click Options

Each of the three non-graphical data editors support select, shift-select, CTRL-select, click-drag selection capabilities, and a right-click menu options. Right-click a data point in the **Value** column to bring up the following menu:

- **Restore from Raw** copies value from the raw database to the final **Value** and resets flags
- **Set to Minimum Detectable Limit** sets data value to MDL configured in Parameter Editor
- **Set AQS Code** brings up a pick list to apply new AQS null codes
- **Set Qualifier Code** brings up a selection box for AQS qualifier (exception) codes
- **View All Flags** (for single data points only) shows all data logger and system flags and allows you to change or clear flags. Multiple flags can be displayed in each cell.
- **Set Annotations** brings up an annotation screen so you can add an annotation
- Before you can use the **Batch Editor**, two or more data **Values** must be selected. In the **Batch Edit** screen, **Enabled** must be selected for each option to activate that option. **Batch Edit** provides the following functions:

  Update Values
  Scale two or more selected data values as **mX+b** (Original Value times a Multiplier plus a Constant Value), for example, divide by 10 and clear the suspect flag.

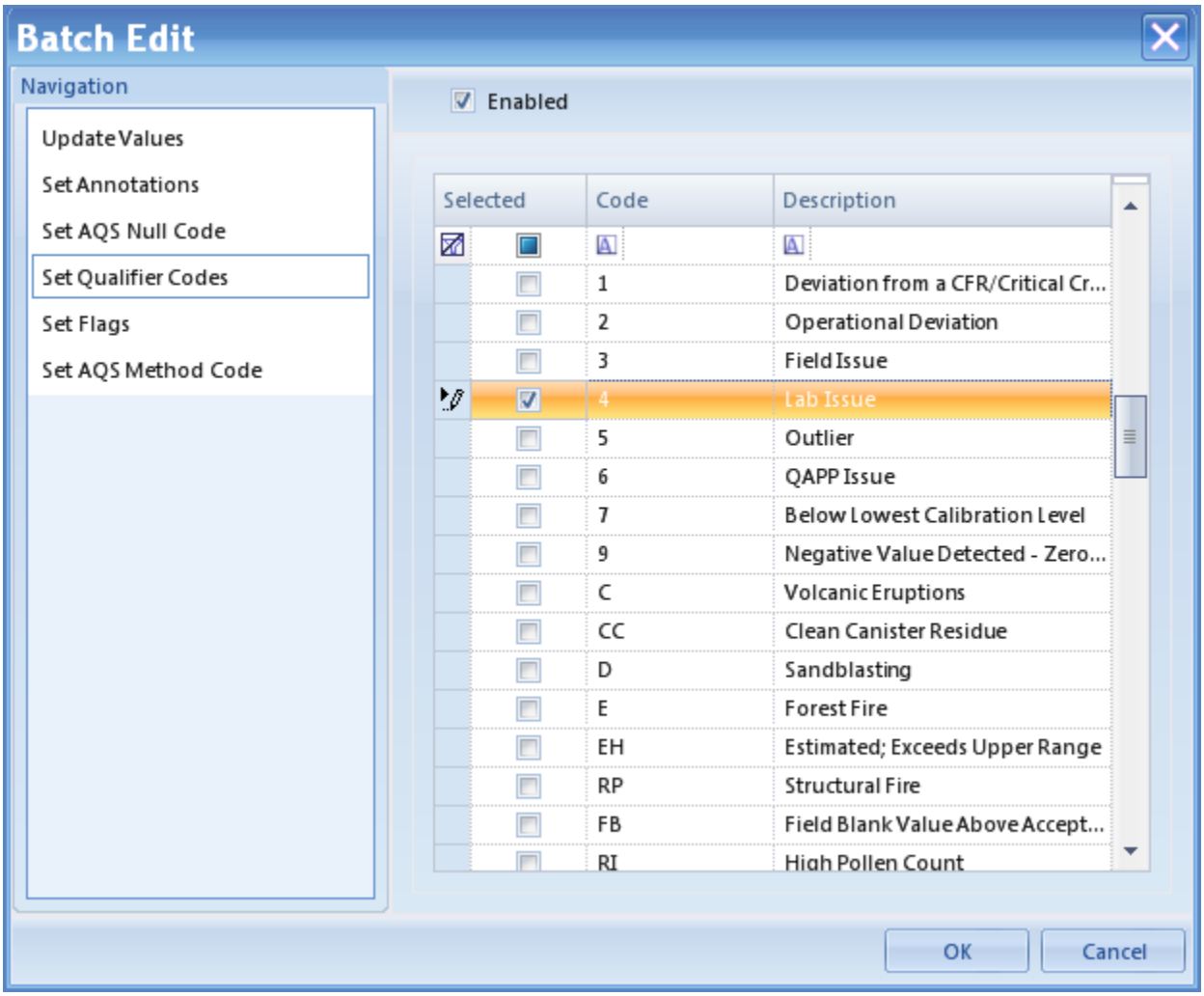
  Set Annotations

  Set AQS Null Code

  Set Qualifier Codes

  Set Flags
  If you select **Set Flags**, you have the option to **Update Children Flags**.

  Set AQS Method Code



Batch Edit with Set Qualifier Codes Enabled

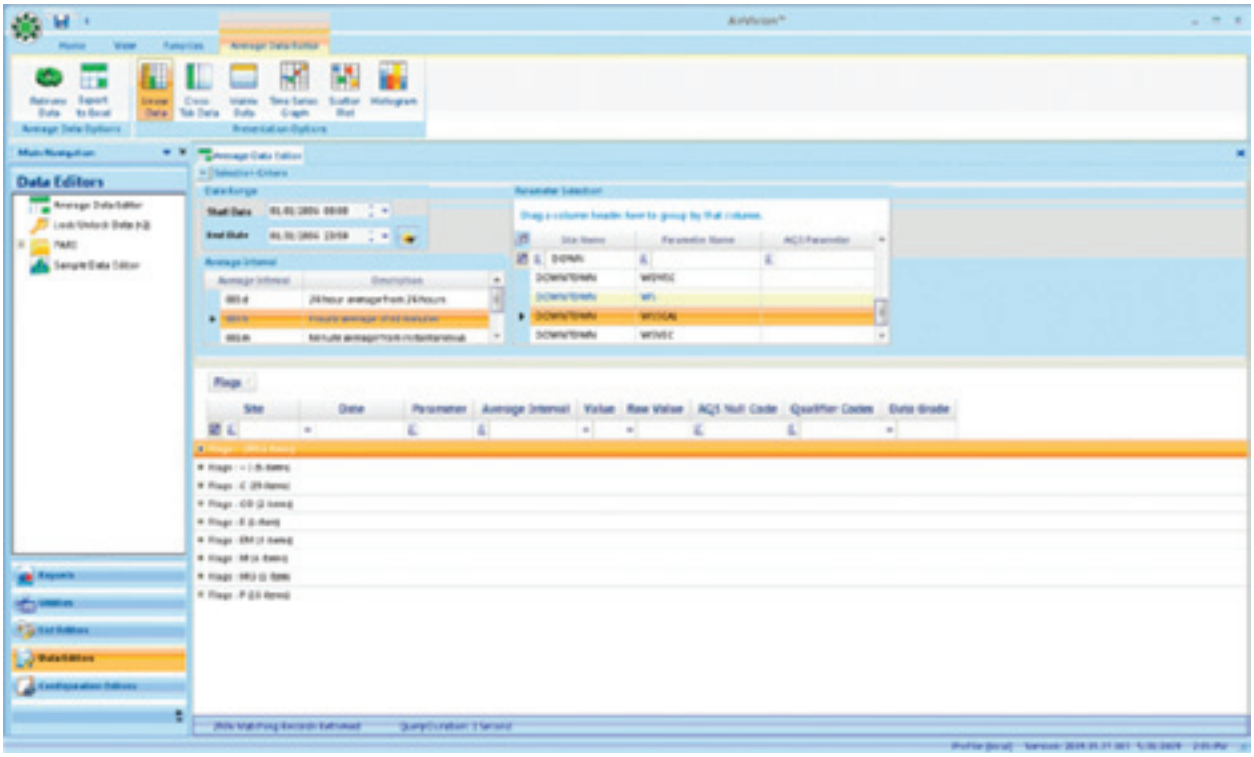
- **Show Children** brings up another instance of the Data Editor with the selected parameters and time range for the **Child** parameter(s) of the selected parameter. This function requires that **Parent-Child Parameter** relationships are configured in **Configuration Editors** > **Site/Parameter**.
- **Drill Down Interval** allows you to drill down to minute averages from hourly averages.
- **Export to Excel** exports the selected data range to an Excel document, including color, font, and layout details. This right-click option is different from the Export to Excel button in the ribbon at the top of the screen because the button on the ribbon exports the entire data set in the data editor and the right-click option exports only selected data.

Click a column heading to sort data by a different heading, for example to group data according to flags. Default is to sort by date.

Click-hold-drag columns to change the order of columns or to drag a column heading to the **Drag a column header here to group by that column** area.

Cross-Tab Data Editor

The **Cross-Tab Data Editor** shows Parameters as columns and sequences rows by date/time in ascending order and provides the same right-click menu as the Linear Data Editor.

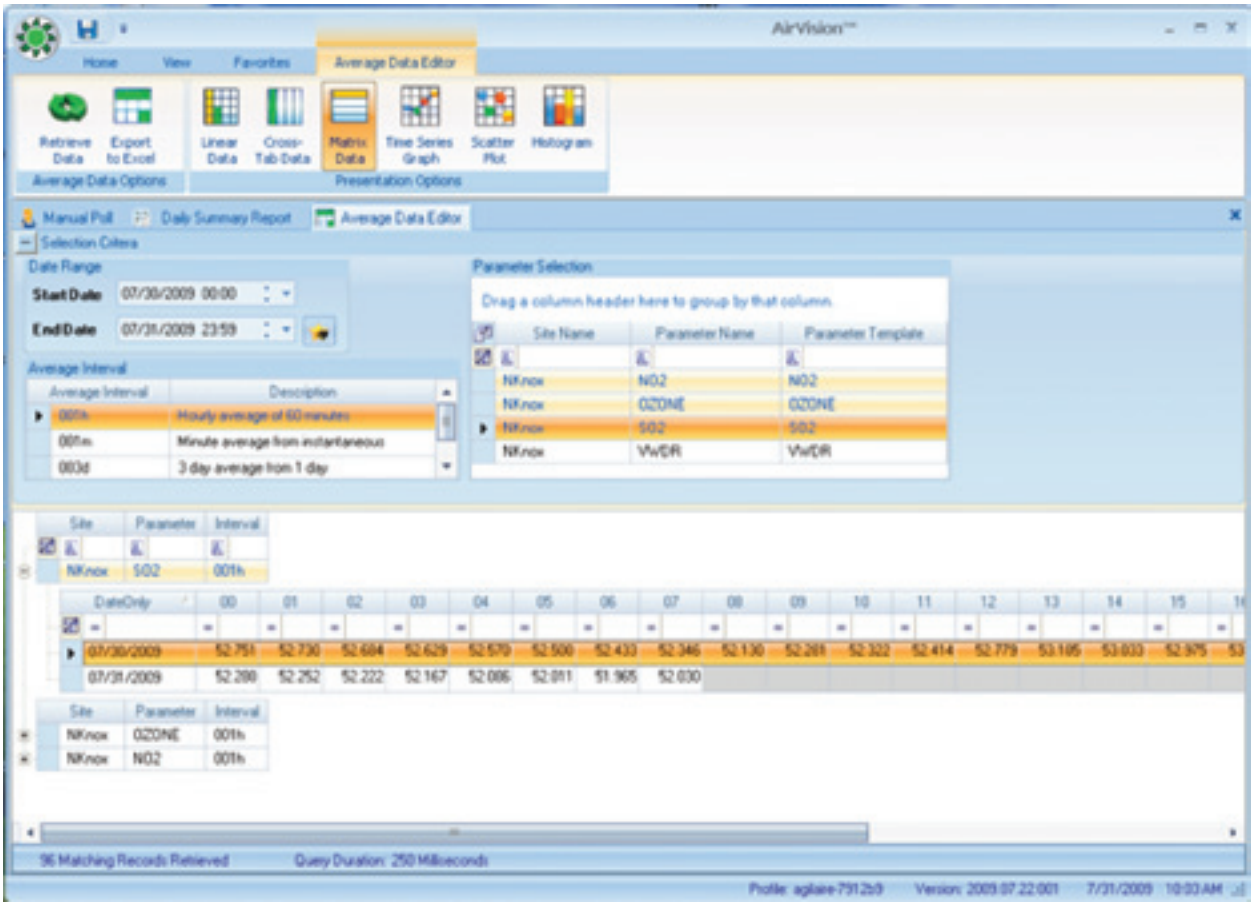


Cross-Tab Data Editor from Data Editors menu

▶ **Note:** You can sort data by any column by clicking on a column header. You can find all flagged data easily. Each group can then be expanded and individually sorted. When you change editor modes, the groupings are not kept.
Also, you can click-hold-and-drag columns to change the order, and click-drag columns to the **Drag a column header here to group** area to group data. If you do this accidentally or change your mind, you can drag it back.

Matrix Data Editor

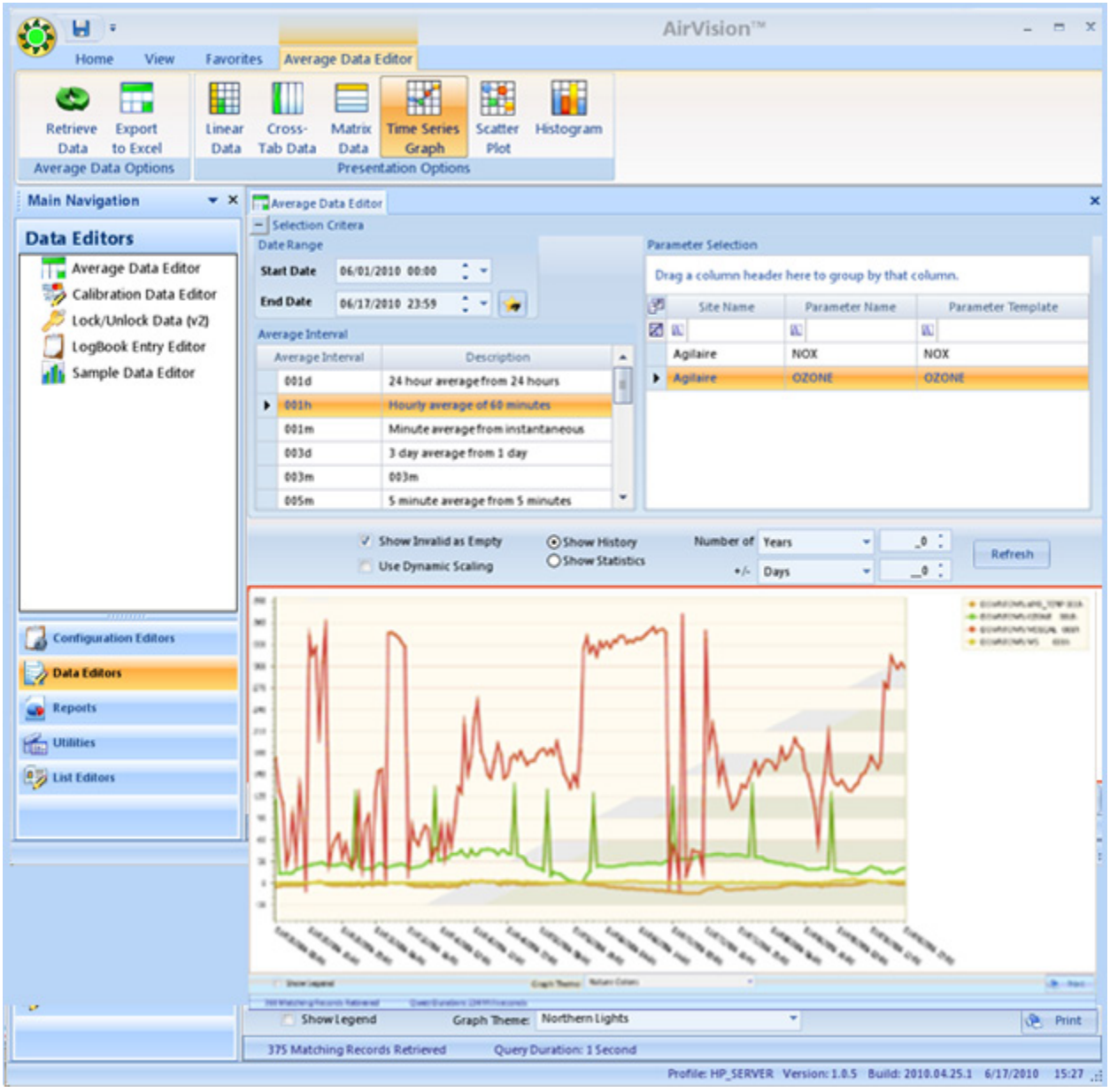
The Matrix Data Editor presents data in a format similar to the monthly report. If you select multiple parameters, they are grouped with a plus (+) symbol for expansion.



Matrix Data Editor from Data Editors menu

Time Series Graph

You can generate the Time Series Graph in two modes, for one or more parameters.
In multi-parameter mode, you can group different parameters together for any time period.
With the tools at the bottom or the screen, you can change the color scheme, remove or restore the legend, and print the graph.
The minus (-) sign in the upper left corner of the screen minimizes the selection criteria to make more room for the graph.



Time Series from Data Editors menu with multiple parameters selected

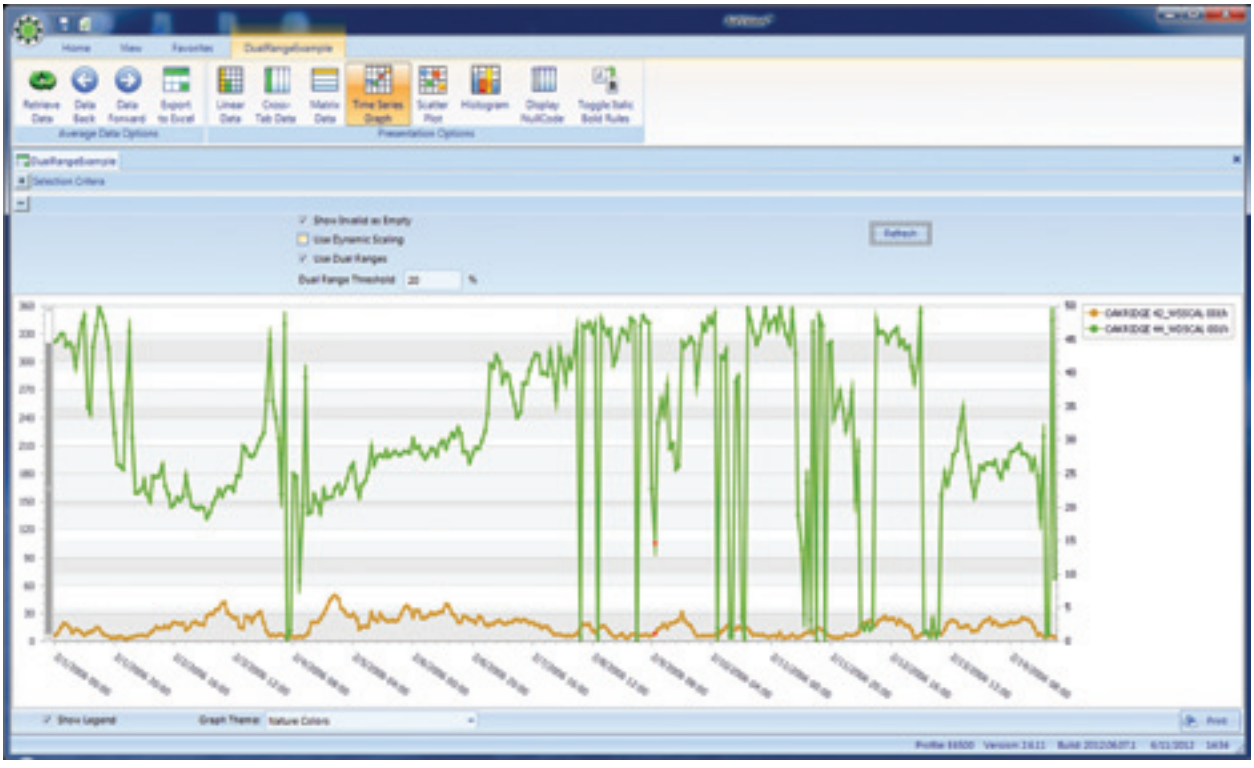
Use the mouse scroll wheel to zoom in or out; right-click and hold to drag the zoomed graph to a different data area.

Hover the cursor over a data point to see the specific date, time, and data value. If there is a flag on the data point the flag will also be displayed.

You can toggle between hiding or showing invalid data (e.g., data during calibration, maintenance, or analyzer failures).

When graphing parameters with two dramatically different full scale ranges, you may choose to use the "Dual Y-Axis Scale" option. When choosing this option, you must also choose the percentage (e.g., 10%, 20%) of the full scale range that is used as the 'breakpoint' for the secondary Y-axis. A value of 20% is common. Note that this function requires that Graph Maximum and Graph Minimum be set in the Parameter configuration. Graphs that have any parameters without limits configured cannot use the Dual Y-Axis function.

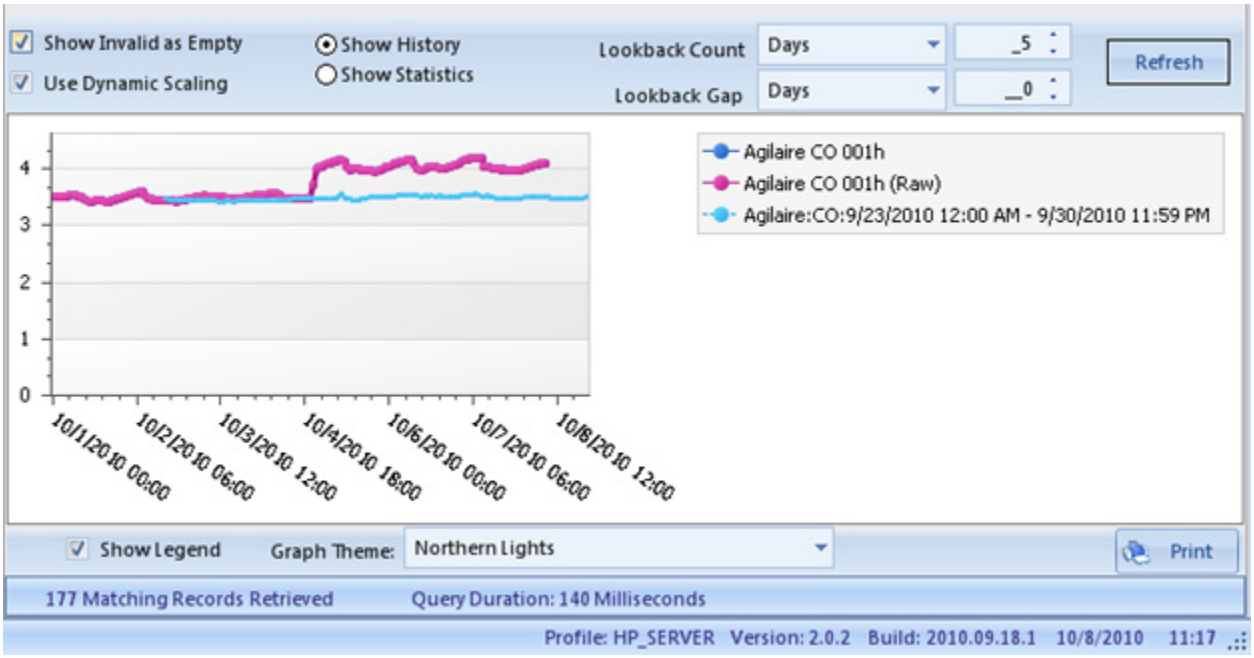
Suppress Flag Colors - If not selected, flagged data will be shown with “dots” with colors based on the Flag configuration. If selected, data will just be shown as the trend graph color. In both cases, hovering the cursor over the point will always show the flag, and the flag colors are still represented in the tabular/grid display.



Dual Y-Axis function

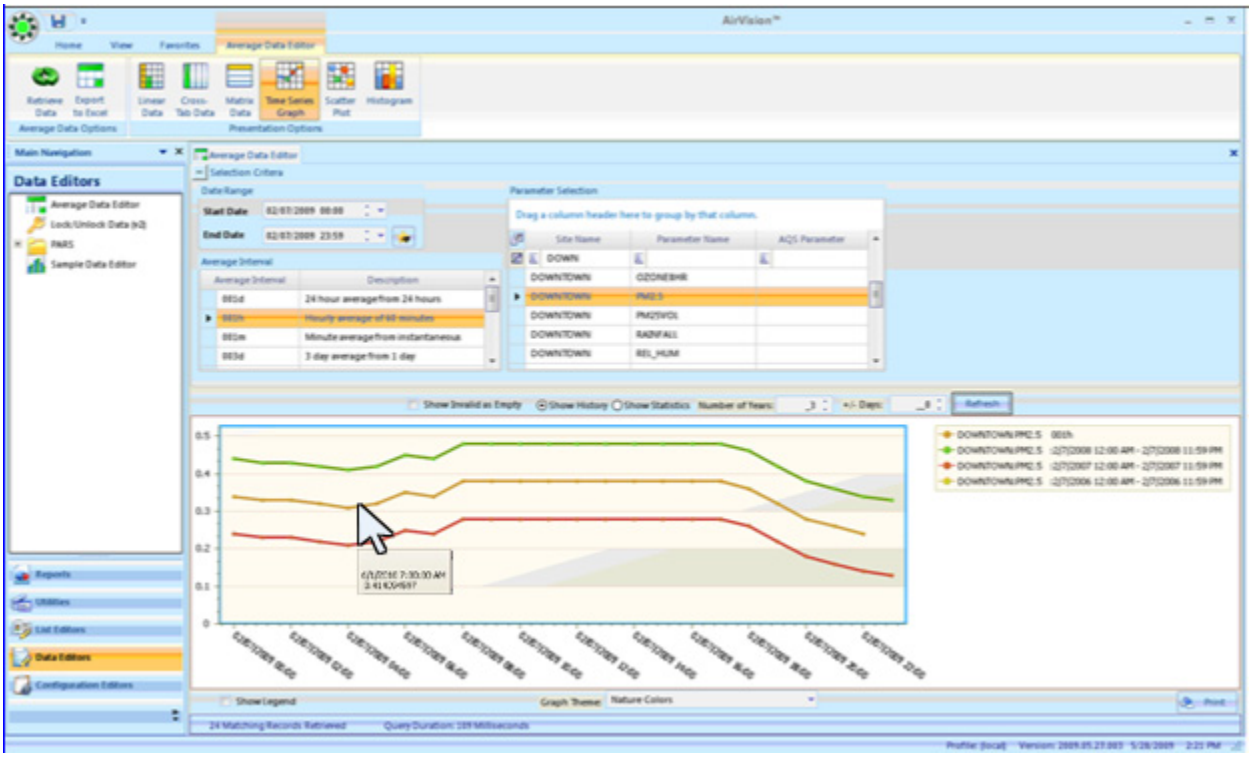
For one parameter, you can choose previous intervals to be other than one year by selecting **Show History** from the options above the graph.If you bring up the Time Series Graph in single parameter mode, you get additional options at the top of the graph:

- **Show Invalid as Empty**
- **Use Dynamic Scaling**
- **Show History** displays N previous years of data alongside main graph
- **Show Statistics** displays cumulative statistics of N previous years--min, max, avg
- **Lookback Count** select number of years, months, or days from the drop-down list
- **Lookback Gap** select number of years, months, or days from the drop-down list
- **Refresh** button must be clicked to show any changes to selections.



Time Series Graph with a single parameter selected

If the database contains data from previous years for the same parameter, those previous years can be graphed in the Time Series Graph alongside the current data by selecting **Show History** and the number of years you want to graph. Each previous year is graphed individually. Select **Refresh** to update the graph.



Time Series Graph with a single parameter and Show History option and hover over displaying date, and time data value

The "+/- Days" selector can be used to compile nearby days for the same hour into the comparison statistics. An example of how this is applied would be:

Current Data = 1/15/09,. Number of Years = 3, +/- Days = 1

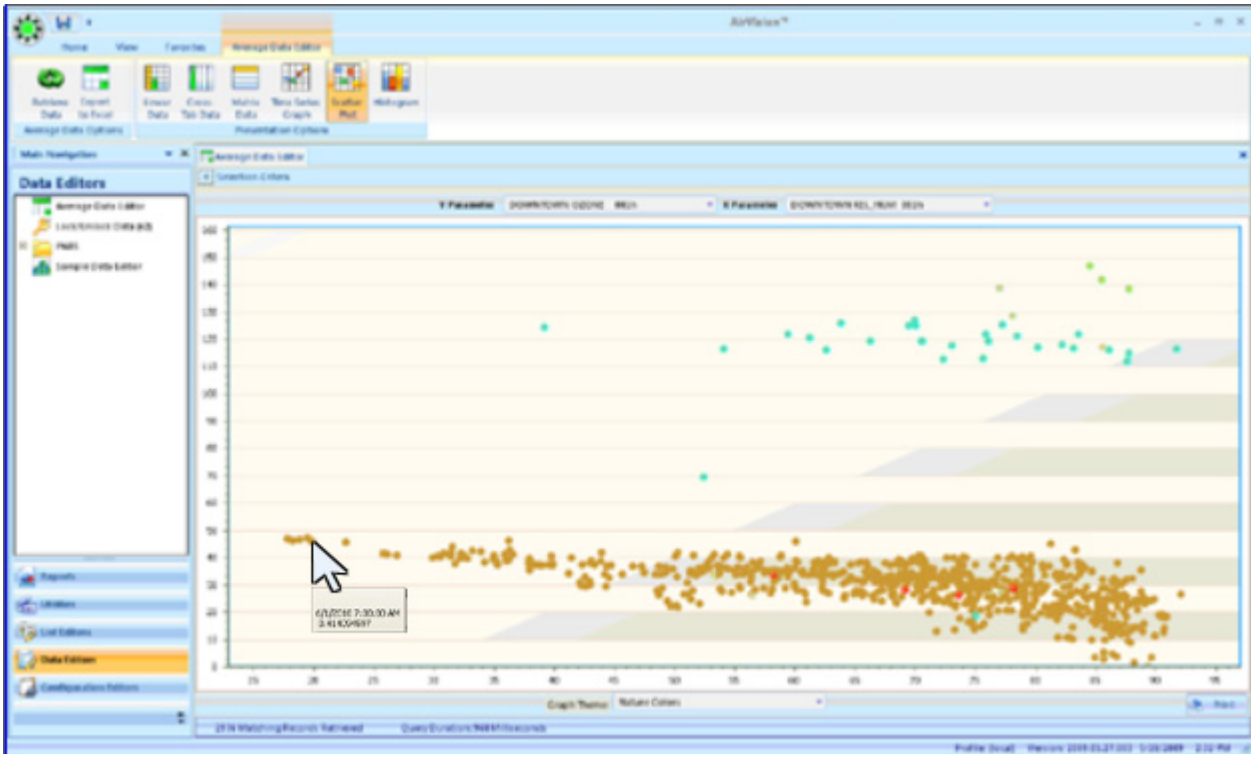
1/5/09 data at hour 00 would be compared against statistics using the following points:

1/4/06, hour 00
1/5/06, hour 00
1/6/06, hour 00
1/4/07, hour 00
1/5/07, hour 00
1/6/07, hour 00
1/4/08, hour 00
1/5/08, hour 00
1/6/08, hour 00

Obviously, selection of a large data set with a long look back period and large skews can be very processor intensive for the client and the SQL server for large data sets. Agilaire recommends this tool be used for data sets of roughly a week or less.

Scatter Plot Graph

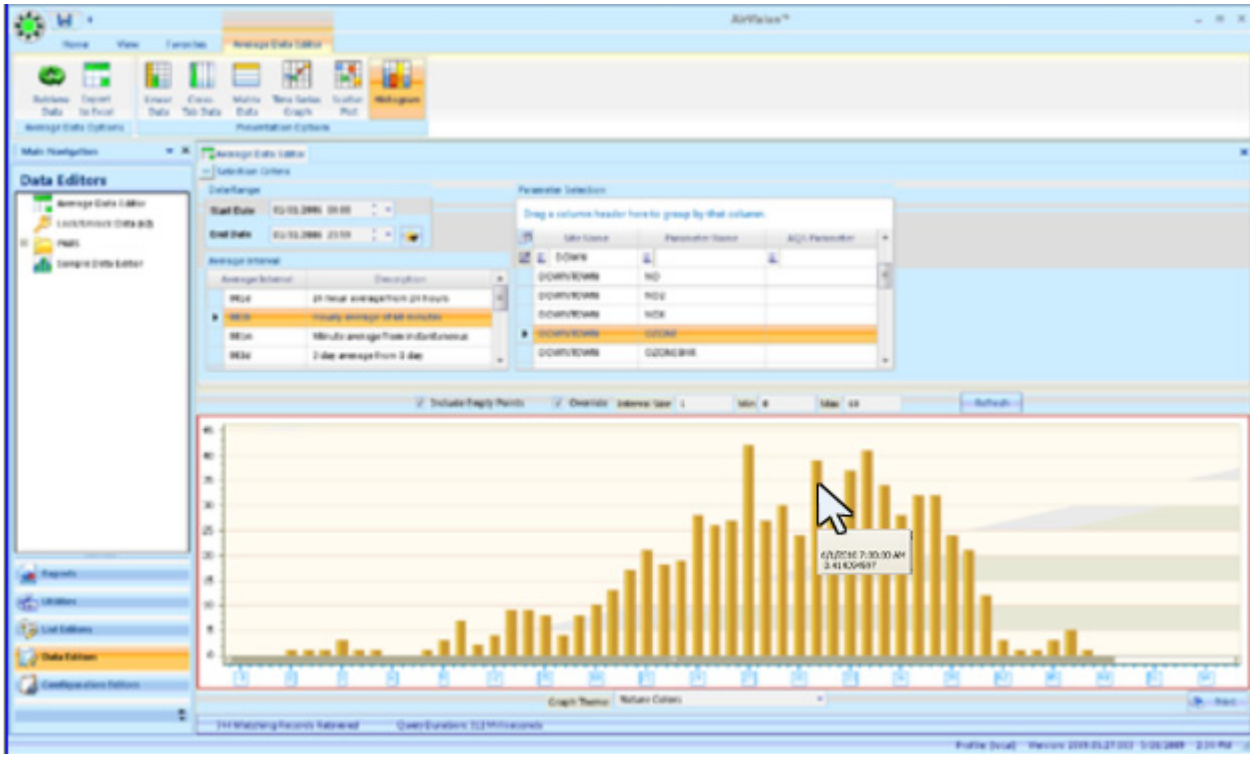
The Scatter Plot Graph allows any two parameters in the existing chart to be plotted in an X-Y chart. The Y axis parameter is the primary parameter and all data points are color coded according to the Data Flags color mappings to help distinguish outliers that have already been flagged.



Scatter Plot Graph from Data Editors menu with hover over displaying date, time and data value

Histogram

The Histogram provides a graph of the distribution of values for the entire data set, but it is designed to display only one parameter at a time, so be careful not to use multiple parameters. The default graph uses the graph maximum/minimum from **Configuration Editors** > **Site/Parameter**, but you can check **Override** to set a custom max/min specifically for the X axis of this graph.

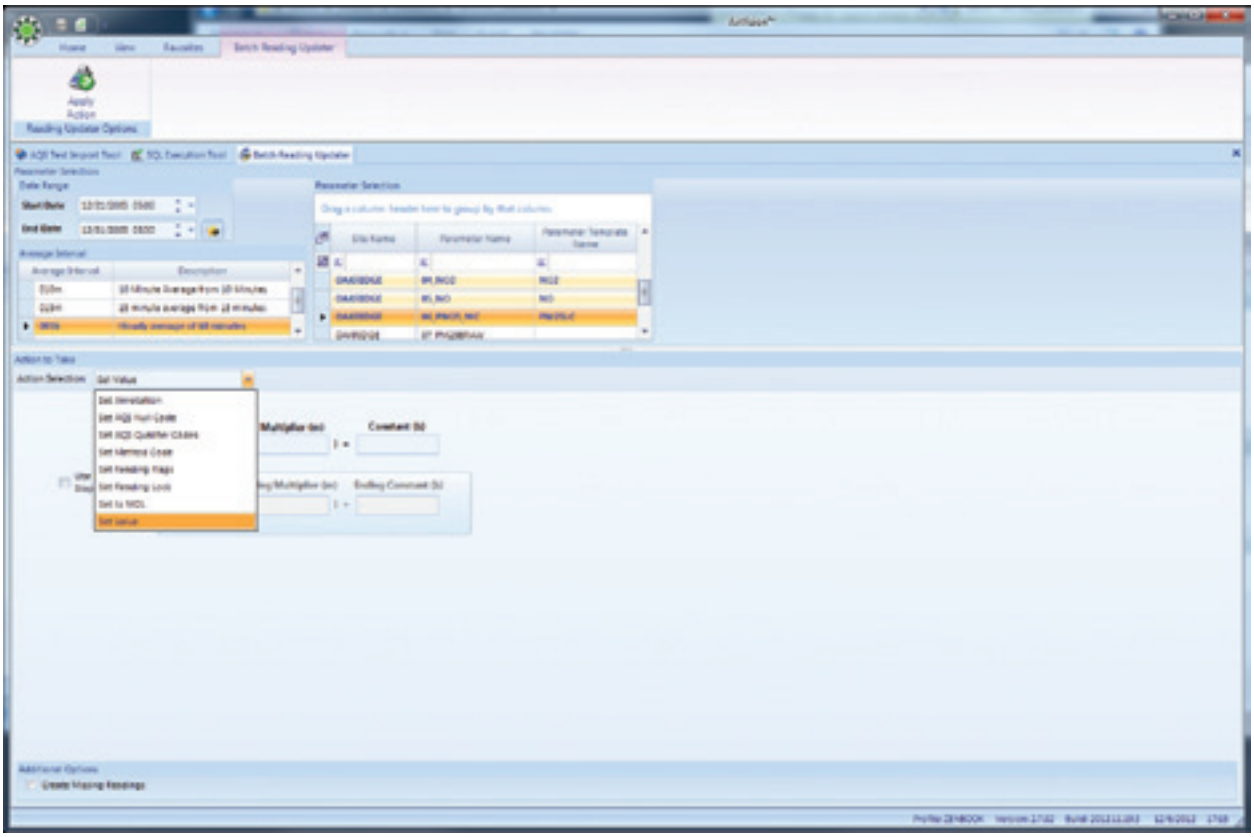


Histogram from Data Editors menu with hover over displaying date, time and data value

Batch Reading Update

This editor allows the user to do 'blind' edits on very large data sets without having to retrieve the data into memory in the Average Data Editor. The user simply selects the sites, parameters, time period, and the required action, much like the Batch Edit options in the Average Data Editor.

This tool also offers the option to "lock" data and prevent future edits until the data has been unlocked (again, using the Batch Edit tool). Locked data appears in the Average Data Editor with a padlock icon beside it.



Batch Reading Updater

Sample Data Editor

The Sample Data Editor allows manual entry of PM filter, air toxics samples, or other non-continuous data.

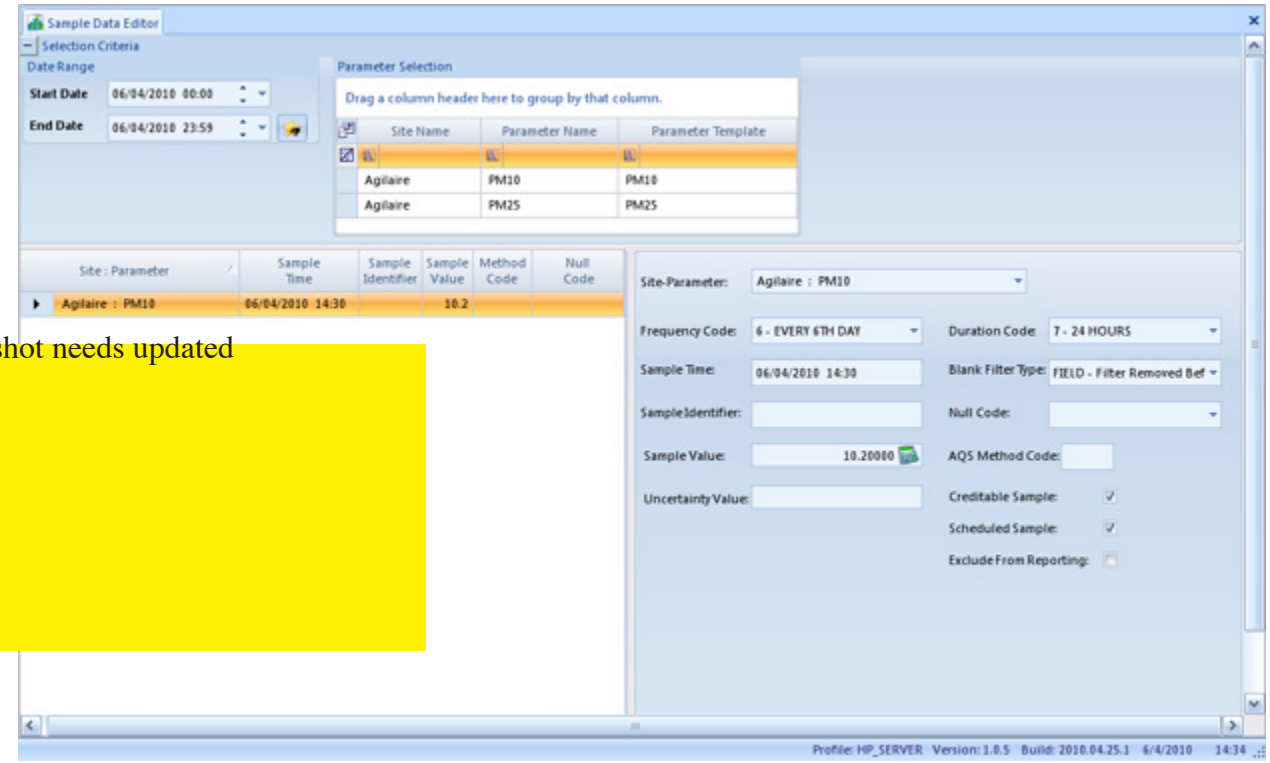
⇨ **Important!** The parameter must have been configured in the Site/Parameter Table as either a (Particulate) Sample or Composite data type parameter for it to appear as a selection in the sample data editor.

To create a new sample data record, use the **Add** button on the ribbon. The required fields will be marked to the right with a red "!" icon.

You can optionally select a special blank type (field blank, lab blank) for appropriate notation in AQS reporting. You can also define the sample as a Scheduled Sample, whether it is considered a Creditable Sample, and also select to have the sample marked as non-reportable. The Sample Identifier is a free-form field to be used for the filter ID or some other ID code to trace the sample.

The editor can also be used to retrieve and edit previous samples using the date range selection tool and the **Retrieve Data** toolbar icon.

Sample data can also be imported automatically using the optional File Import Tool.

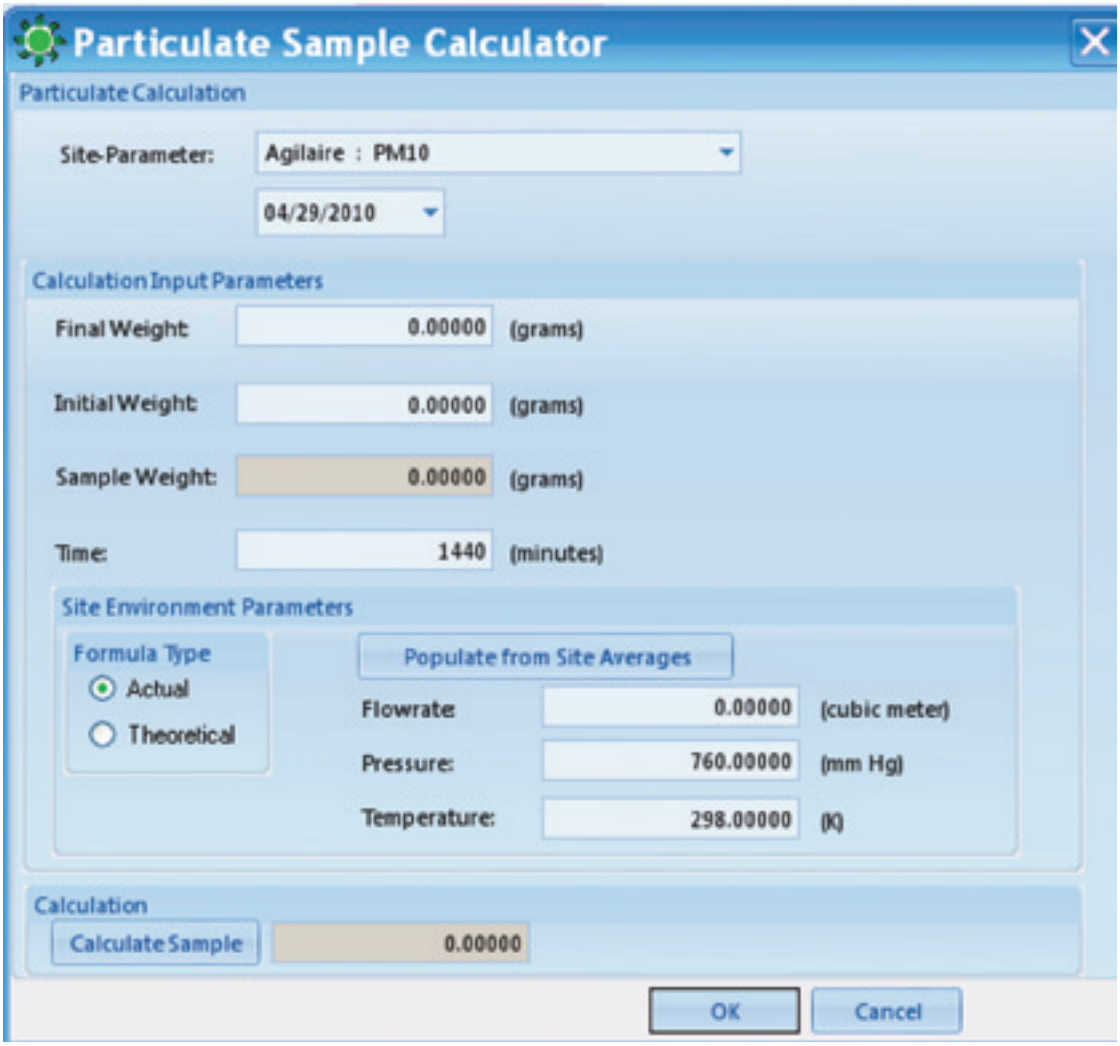


screenshot needs updated

Sample Data Editor

PM Calculator in Sample Data Editor

A PM Calculator can be accessed from the Sample Data Editor by clicking the icon within the Sample Value field.



PM Calculator accessed from the Sample Data Editor

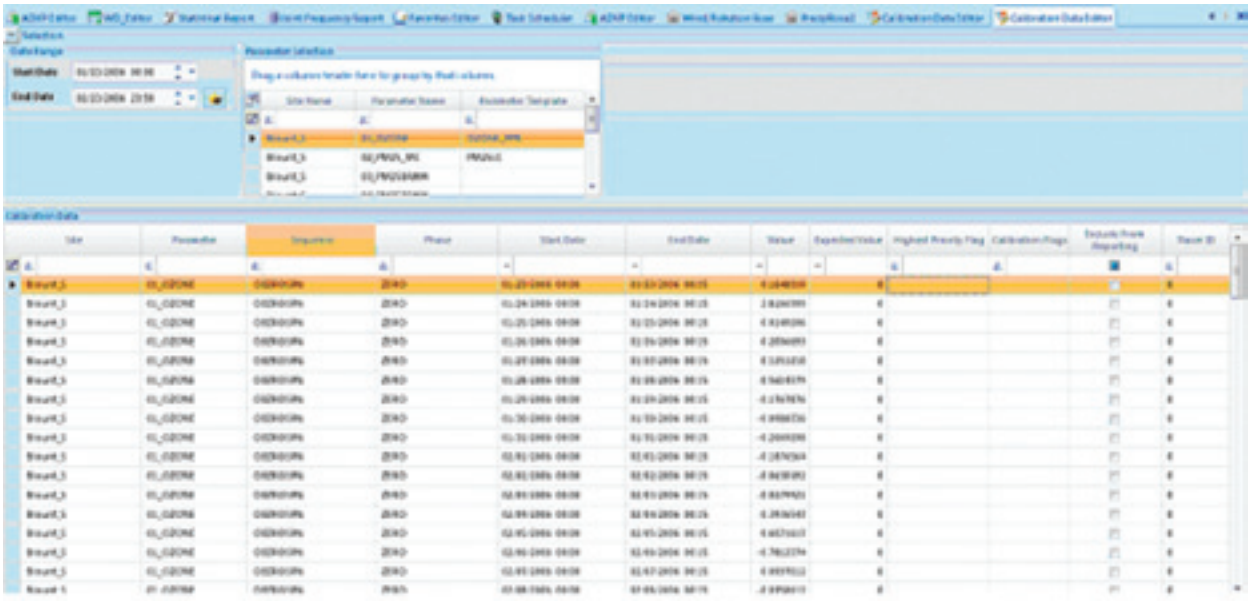
Calibration Data Editor

The Calibration Data Editor can be used to correct errors in calibration records collected from the data logger, or to add new records (e.g., to reflect a manually collected calibration).

To edit existing records, select the appropriate site/parameter and date range, and use the **Retrieve Data** ribbon icon.

You can edit dates, times, values, expected values, bottle/tracer IDs, or mark the record as non-reportable. However, there is no provision to delete a record.

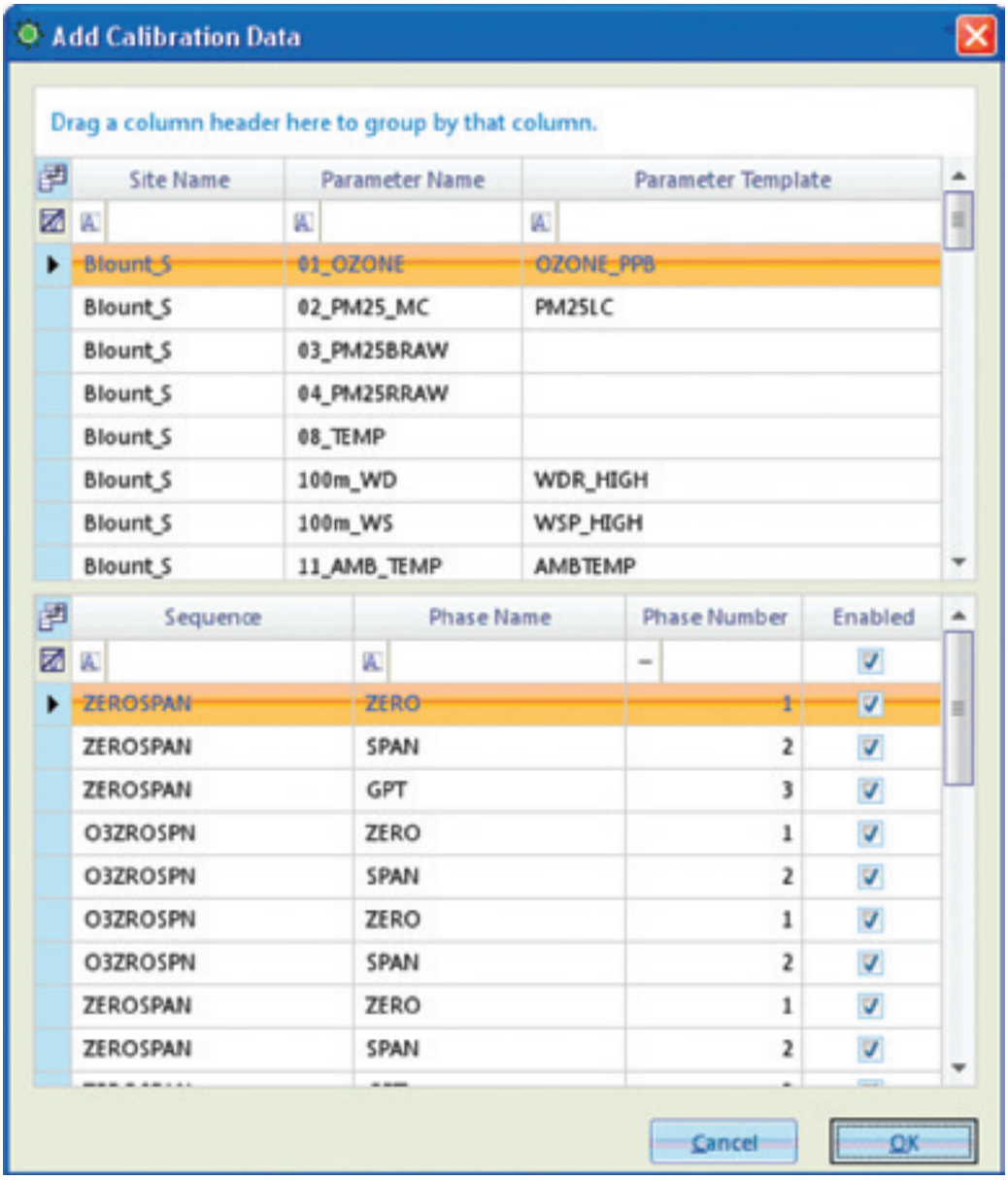
To add a new record, press the **Add** icon on the ribbon. You will be prompted for the site, parameter, calibration program and phase: The record will be created in the editor, and the remaining record characteristics can be entered. The user may also define the calibration level of a phase (ZERO, PREC, etc). This is used primarily by the Cal Adjustment Tool and the AQS Precision Report function. The level will normally be added automatically by the system if the cal level is defined in Data Source Details for the cal phase, but the Cal Editor allows for updating old records or correcting data.



Calibration Data Editor

To add a new calibration record, press the **Add** icon on the ribbon. You will be prompted for the site, parameter, calibration program and phase:

The record will be created in the editor, and the remaining record characteristics can be entered.



Adding Calibration Data in the Calibration Data Editor via the Add button on the ribbon

Lock/Unlock Data

This feature will be available in later versions of AirVision.

LogBook Entry Editor

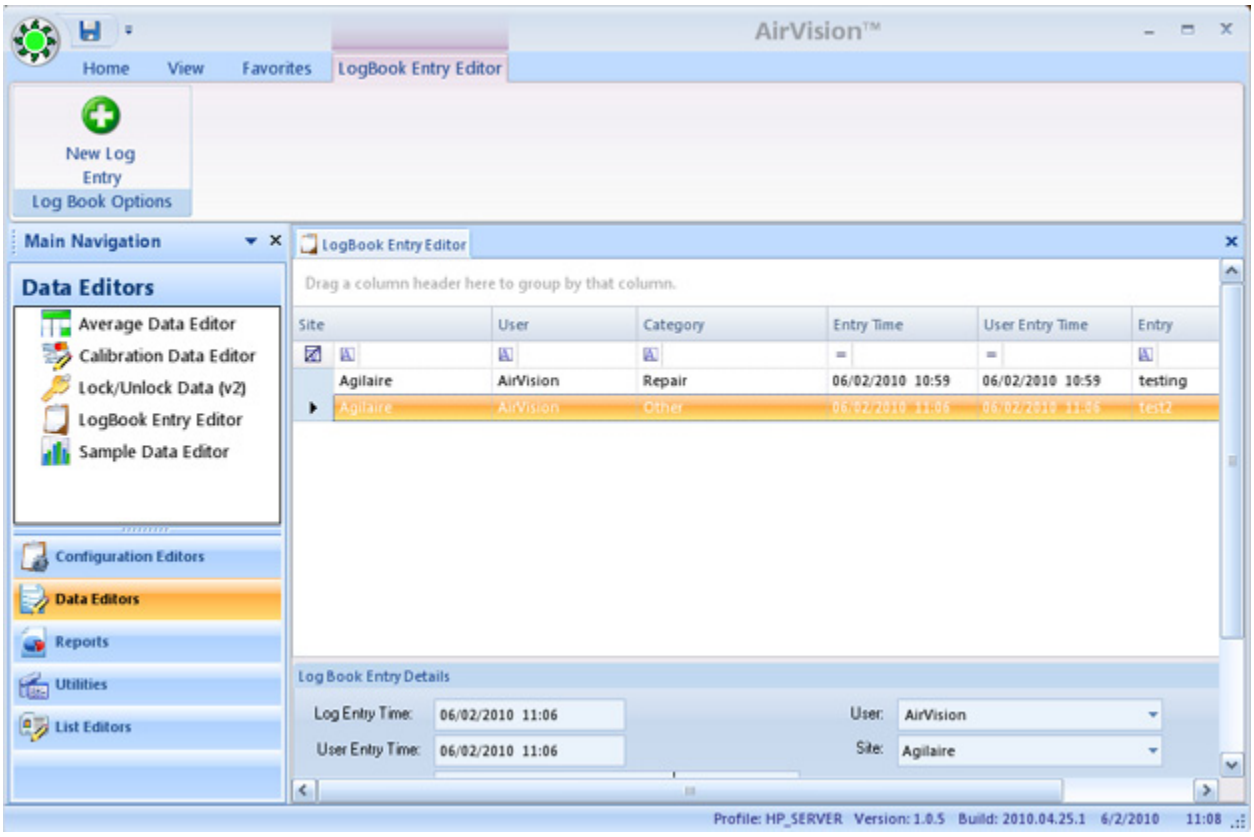
The LogBook Entry Editor allows you to make entries in a logbook that can then be seen in LogBook Reports. To make a logbook entry, open **LogBook Entry Editor** from the Editors menu.

Click the **New Log Entry** button in the upper left corner of the screen

In the bottom section of the screen enter a **Log Entry Time**, **User Entry Time**, select a **Category** from the drop-down list or select **New Category** and enter a different category, select a **User** and a **Site** from the drop-down lists

Enter the LogBook message in the **Entry Text** box and click **Save**.

The new entry information will be displayed in a row in the top section of the screen.



Adding LogBook entries in the LogBook Entry Editor from the Editors menu

By default, the logbook entries do not accept changes or addendums after the record has been saved. A system option is available to allow addendums to be made. To enable this, contact support@agilairecorp.com.

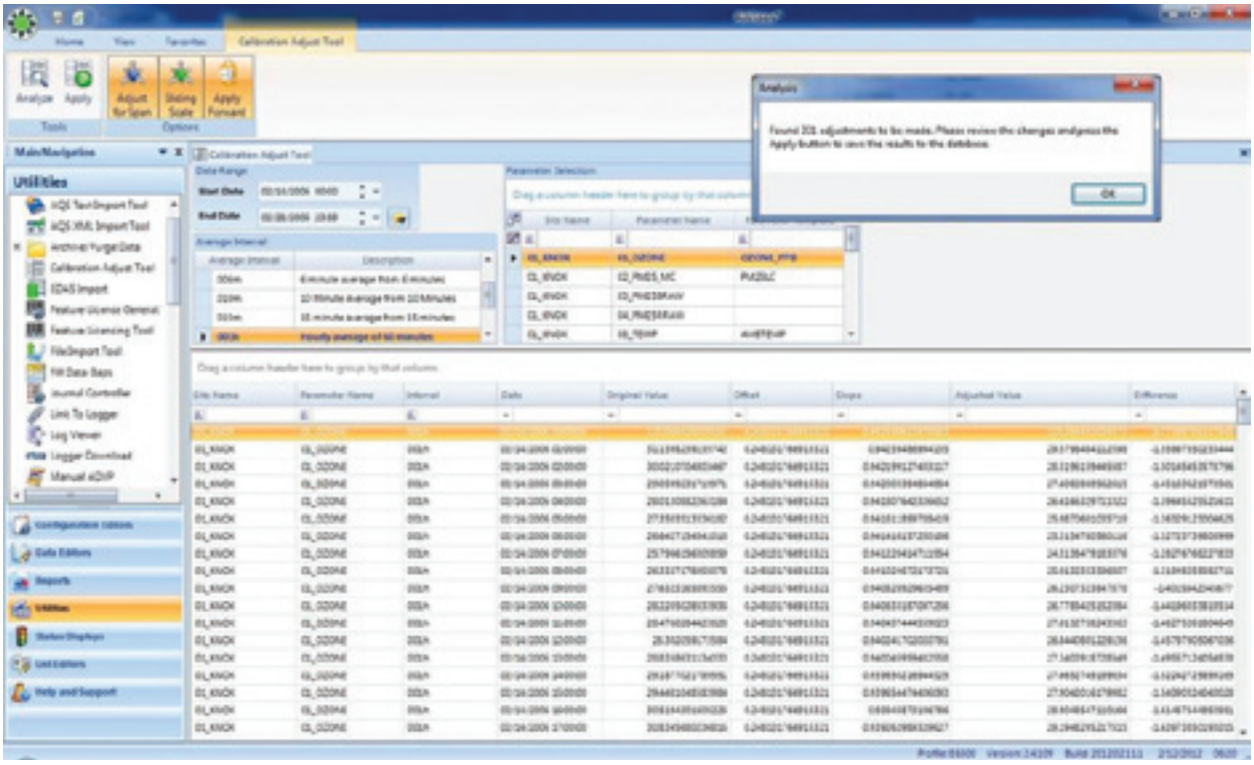
Cal Adjust Processor

The **Cal Adjust Processor Tool** allows you to apply zero adjustments or zero/span adjustments to data based on calibration results and expected value. Note: This tool is optional and not normally enabled, but can be enabled by contacting support@agilairecorp.com.

Note that AirVision will look for calibration records that have been marked ZERO and SPAN by the Cal Level defined in Data Source Details for the cal phase. If these records are not marked, AirVision attempts to identify zero and span data via the phase name. Note that the Calibration Data Editor allows for updating old records or correcting data.

To use the Cal Adjust Tool, select a **Data Range and Parameter(s)**. The tool can run on multiple sites/parameters, but review of the results can be confusing, so it may be preferable to use the tool with one parameter at a time at first. The filter fields could also be used to filter results for multiple site/parameters.

Once selected, choose **Analyze** from the toolbar. The screen will show the number of points found that can be correlated with calibration data. The bottom part of the report shows the current values and the proposed changes.



Calibration Adjust Processor

The changes depending on the modes set on the right part of the ribbon:

Adjust for Span-Deselect this if you only want to do a zero correction.

Sliding Scale- If span correction is adjusted, you may optionally choose to have the slope factor linearly interpolated between each cal (e.g., if the slope correction on cal#1 is 1.1, and the slope correction on cal #2 is 1.05, then the hourly data at the midpoint would have a slope correction of 1.075, the hour closest to cal#1 would be 1.1, the hour closest to cal#2 is 1.05, etc).

Appy Forward- If selected, cal corrections are applied using the calibration results going forward in time (default). If de-selected, corrections are applied going backwards from each calibration.

If you change the mode, you will need to select the "Analyze" button again to see the new proposed changes.

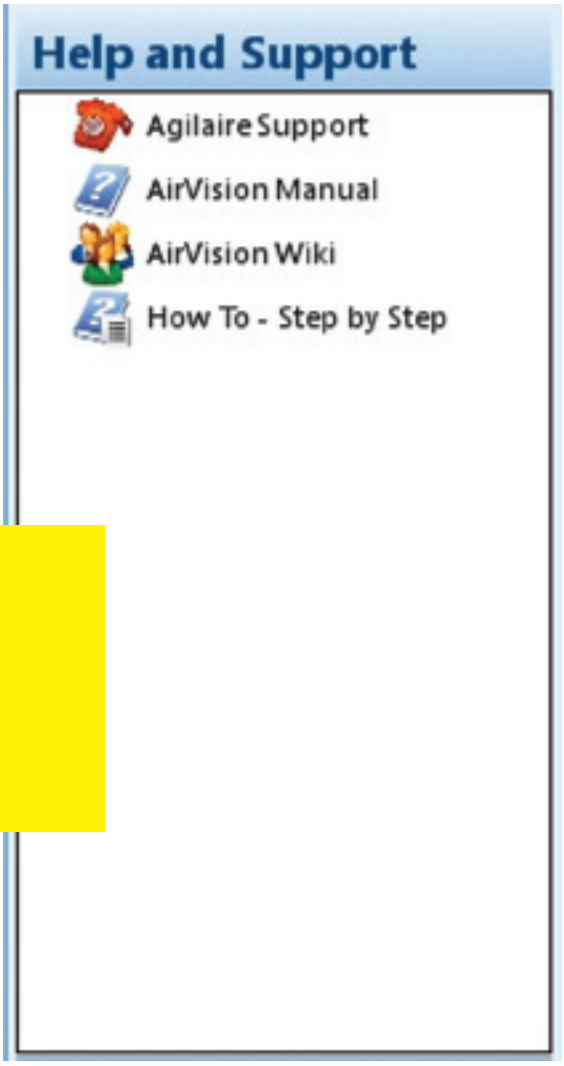
Once you are satisfied, you may click the "Apply" button to make the changes to the database. Any data changed will be marked with the 'z' (Cal Adjusted) data flag, and the data is locked from second calibration adjustments. If the user wishes to return to original, the user can use the Batch Edit function in the Average Data Editor to return the data to original form.

Chapter 5

Help & Support

Agilaire's Help and Support menu offers four options:

- Agilaire Support
- AirVision Manual
- AirVision Wiki
- How-to Step by Step



screenshot needs updated

Agilaire Help and Support menu

Agilaire Support

Agilaire Support is a link to the Agilaire website, www.agilairecorp.com. You can reach our support staff at:email: support@agilairecorp.com
phone: 865-927-9440, press 2

AirVision Manual

If you select AirVision Manual, you will see a pdf of the latest User's Manual. You can also download the manual from our website, www.agilairecorp.com.

AirVision Wiki

The AirVision Wiki is a link to Agilaire's ongoing website that allows adding and editing of AirVision's latest developments. The Wiki includes FAQs, AirVision Documentation, Training information, Release Notes, Technical Notes/Workarounds, Design Notes for Upcoming Features, Tricks and Tips, ADVP Rule Suggestions, EPA Conference Notes, and Step by Step Procedures. Customers who apply to be a writer add comments and suggestions.

How To--Step by Step

This options takes you to a section of the Agilaire Wiki that provides an overview of the full steps necessary for common activities in AirVision such as Data Logger configuration, Modbus Instrument and Channels, Internet Polling, Modem Connections, TCP/IP Connection to a logger, Database Backup, and Restoring a Database.

'software release info' needs added

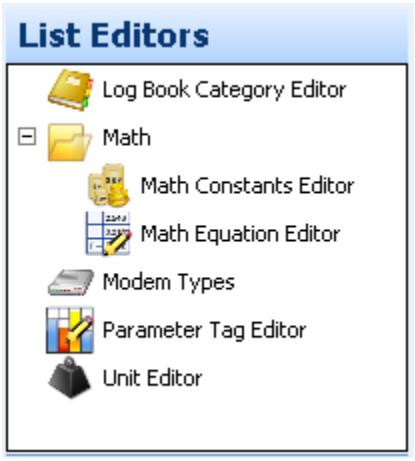
Chapter 6

List Editors

The AirVision List Editors Menu consists of four items:

- Log Book Category Editor
- Math
  - Math Constants Editor
  - Math Equation Editor
- Modem Types
- Parameter Tag Editor
- Unit Editor

List Editors display items in these categories. Access to the List Editors is controlled by Administrative personnel in the Securities Menu



List Editors Menu

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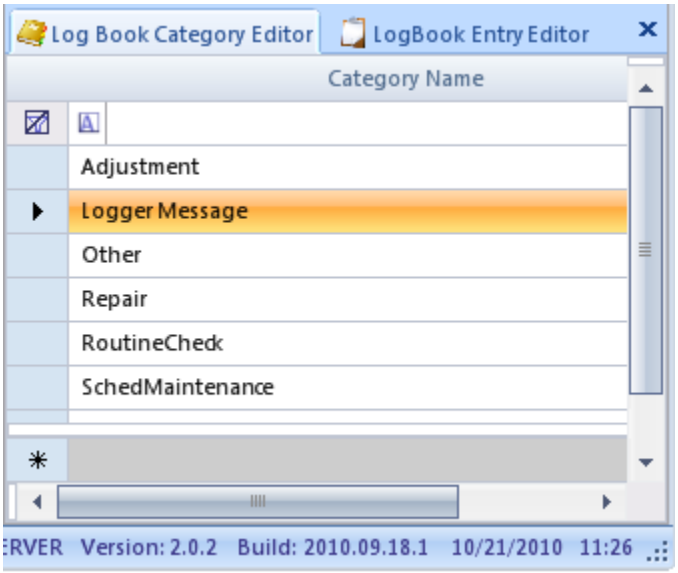
Log Book Category Editor

Selection of a Log Book Category is required when you make an entry in the **LogBook Entry Editor** (**Data Editors>LogBook Entry Editor**). When you make an entry in the LogBook Entry Editor, you can either click in the category line and select from the drop-down list, or you can select New Category and write your own category. New categories will be saved in the list when you click the **Save** button. The default Log Book Categories are: Adjustment, Logger Message, Other, Repair, Routine Check, and Scheduled Maintenance.



Logbook Category Editor

New Categories can also be added in the **LogBook Category Editor** from the **List Menu**, which displays all **Category Names**. To add a **Log Book Category**, click on the **asterisk** on the bottom line and enter the category, then click the **Save** icon.

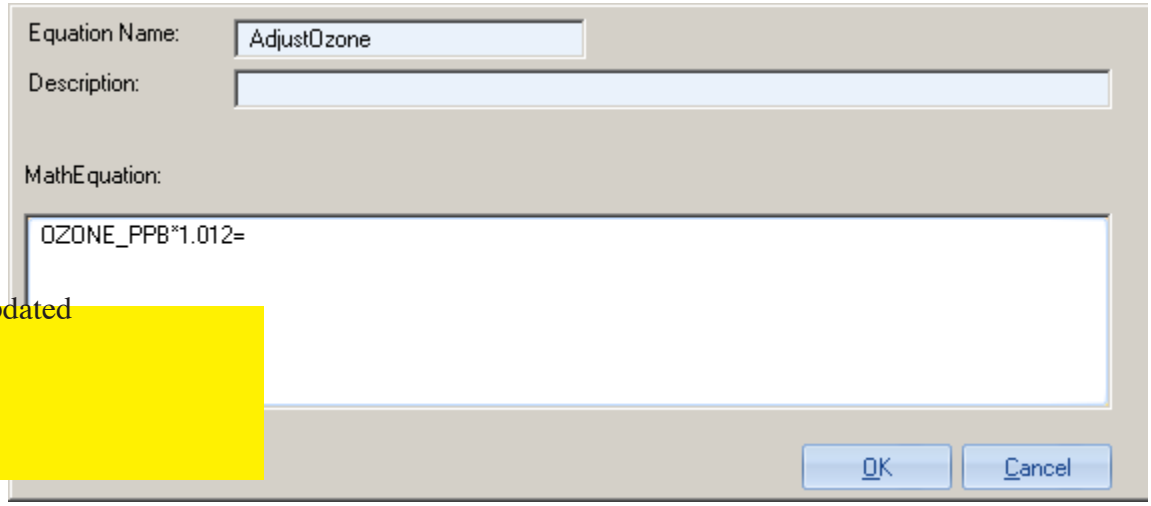
Math Editors

Central Math Processor

AirVision includes the capability to perform mathematical calculations at the server, either on a manual basis, or as a scheduled task. To perform these calculations, you will need to define the mathematical calculation to be made in the Math Equation Editor (**List Editors > Math > Math Equation Editor)**. Each equation is given a name to reference (e.g., "SO2_Adjustment") which is then referenced in the math utility or the Task Scheduler.

Equations may act on any defined average interval, and must reference Parameter Templates, rather than specific site/parameter combinations. This allows a general equation to be configured once, and used for multiple sites without having to repeat the same equation.

To create a new equation, open **List Editors > Math > Math Equation Editor** and click the **Add Equation button.** Enter the **Equation Name** (required), and optional **Description**, and then the **equation**. The equation takes the form of parameter template names, operators, and functions. Parenthesis are supported.



screenshot needs updated

Math Equation Editor from List Editors

Binary operators (operators on two variables) include:

- * Multiply
- / Divide
- + Add
- - Subtract
- % Modulo (remainder)

Other binary and Uniary functions (functions that operate on one variable or one result of another embedded equation) include:

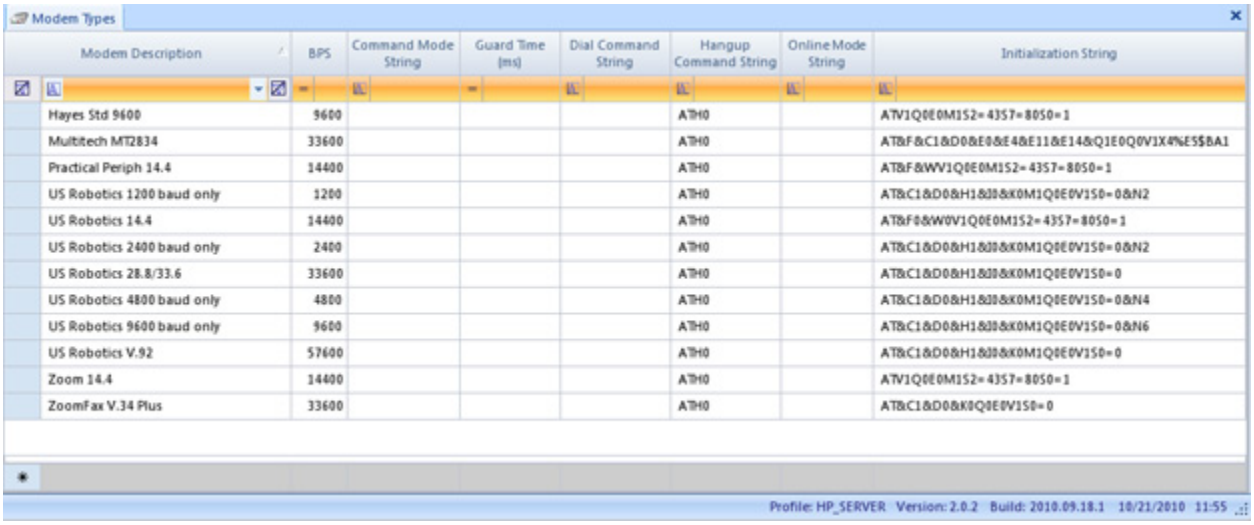
Name	Description	Usage
Abs	Returns the absolute value of a specified number.	Abs(-1)
Acos	Returns the angle whose cosine is the specified number.	Acos(1)
Asin	Returns the angle whose sine is the specified number.	Asin(0)
Atan	Returns the angle whose tangent is the specified number.	Atan(0)
Cos	Returns the cosine of the specified angle.	Cos(0)
Exp	Returns e raised to the specified power.	Exp(0)
Log	Returns the logarithm of a specified number.	Log(1, 10)
Log10	Returns the base 10 logarithm of a specified number.	Log10(1)
Max	Returns the larger of two specified numbers.	Max(1, 2)
Min	Returns the smaller of two numbers.	Min(1, 2)
Pow	Returns a specified number raised to the specified power.	Pow(3, 2)
Round	Rounds a value to the nearest integer or specified number of decimal places. The mid number behaviour can be changed by using EvaluateOption.RoundAwayFromZero during construction of the Expression object.	Round(3.222, 2)
Sign	Returns a value indicating the sign of a number.	Sign(-10)
Sin	Returns the sine of the specified angle.	Sin(0)
Sqrt	Returns the square root of a specified number.	Sqrt(4)
Tan	Returns the tangent of the specified angle.	Tan(0)
Truncate	Calculates the integral part of a number.	Truncate(1.7)

⇨ **Important!** These equations MUST be referred to by the case-specific version of the equation. You must use “Max(x,y)”, not “MAX(x,y).”

For equations, Information flags are not propogated, while Validity flags are propagated from constituent channels. Consult the Flags Editor for details on which flags are considered Informational and Validation flags.

Modem Types

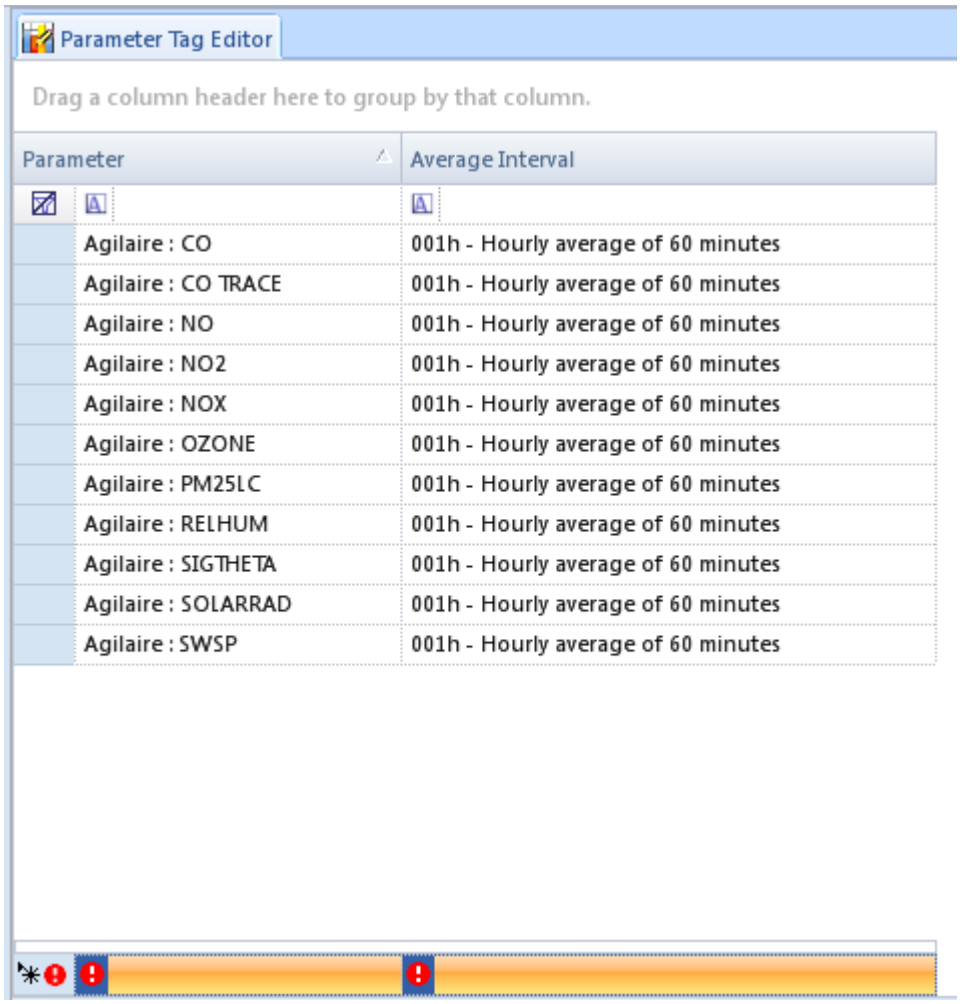
Modem Types in the **List Editors Menu** lists all the modem types that are available in the drop-down list when you add a **Modem** and select a **Modem Type** in **Configuration Menu>Server Configuration**. New **Modem Types** can be added in the **List Editors Menu** by clicking on the **asterisk** on the bottom line of the list.


Modem Types
Modem Description
BPS
Command Mode String
Guard Time (ms)
Dial Command String
Hangup Command String
Online Mode String
Initialization String
Hayes Std 9600 9600 ATH0 ATV1Q0E0M1S2=43S7=80S0=1
Multitech MT2834 33600 ATH0 AT&F&C1&D0&E0&E4&E11&E14&Q1E0Q0V1X4%E5$BA1
Practical Periph 14.4 14400 ATH0 AT&F&WV1Q0E0M1S2=43S7=80S0=1
US Robotics 1200 baud only 1200 ATH0 AT&C1&D0&H1&I0&K0M1Q0E0V1S0=0&N2
US Robotics 14.4 14400 ATH0 AT&F0&W0V1Q0E0M1S2=43S7=80S0=1
US Robotics 2400 baud only 2400 ATH0 AT&C1&D0&H1&I0&K0M1Q0E0V1S0=0&N2
US Robotics 28.8/33.6 33600 ATH0 AT&C1&D0&H1&I0&K0M1Q0E0V1S0=0
US Robotics 4800 baud only 4800 ATH0 AT&C1&D0&H1&I0&K0M1Q0E0V1S0=0&N4
US Robotics 9600 baud only 9600 ATH0 AT&C1&D0&H1&I0&K0M1Q0E0V1S0=0&N6
US Robotics V.92 57600 ATH0 AT&C1&D0&H1&I0&K0M1Q0E0V1S0=0
Zoom 14.4 14400 ATH0 ATV1Q0E0M1S2=43S7=80S0=1
ZoomFax V.34 Plus 33600 ATH0 AT&C1&D0&K0Q0E0V1S0=0
Profile: HP_SERVER Version: 2.0.2 Build: 2010.09.18.1 10/21/2010 11:55

Modem Types in the List Editors Menu

Parameter Tag Editor

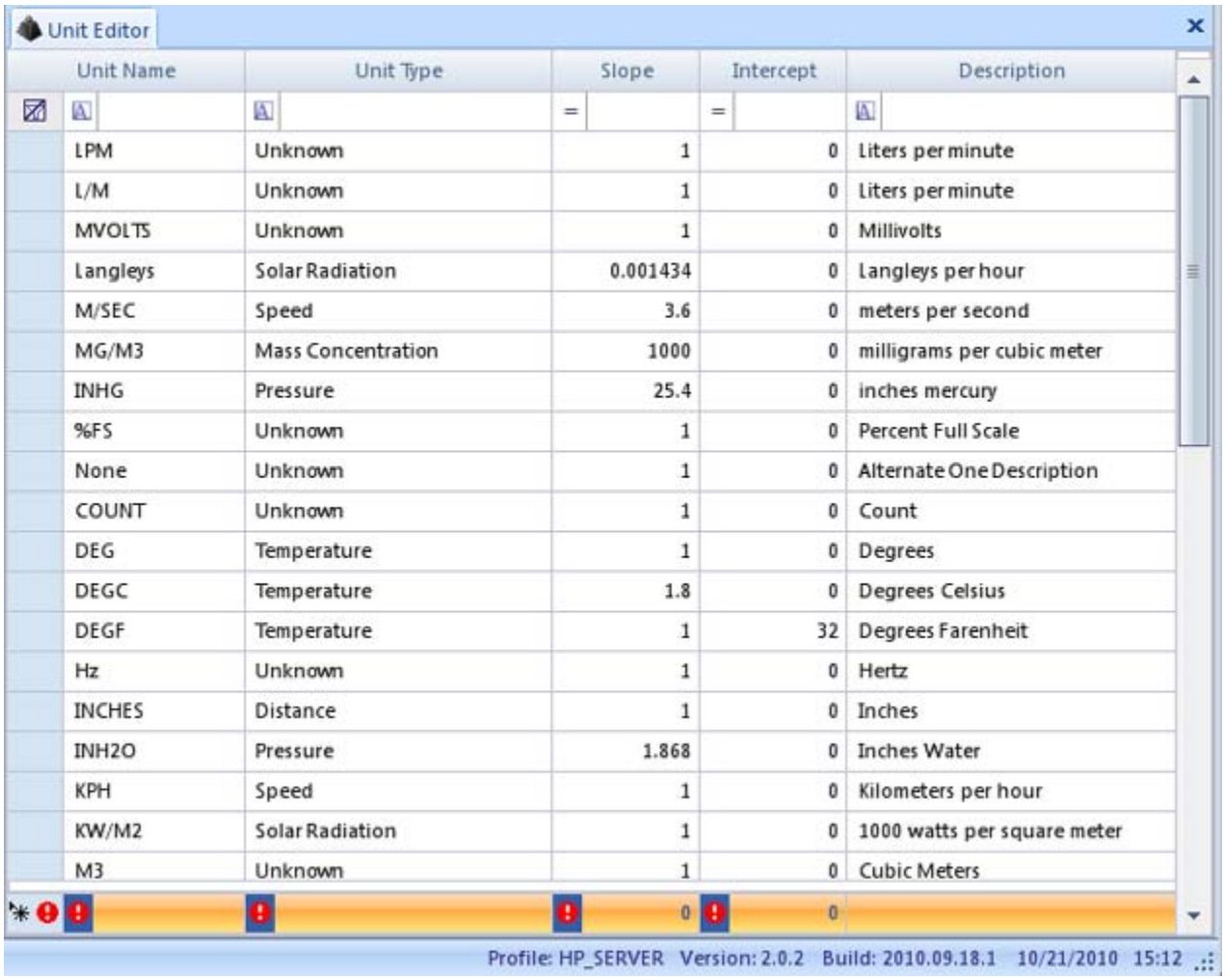
The Parameter Tag Editor in the List Editors Menu lists all the parameter tags in AirVision. To add another Parameter Tag, click on the asterisk in the bottom line of the menu and add a tag.


Parameter Tag Editor
Drag a column header here to group by that column.
Parameter
Average Interval
Agilaire : CO
001h - Hourly average of 60 minutes
Agilaire : CO TRACE
001h - Hourly average of 60 minutes
Agilaire : NO
001h - Hourly average of 60 minutes
Agilaire : NO2
001h - Hourly average of 60 minutes
Agilaire : NOX
001h - Hourly average of 60 minutes
Agilaire : OZONE
001h - Hourly average of 60 minutes
Agilaire : PM25LC
001h - Hourly average of 60 minutes
Agilaire : RELHUM
001h - Hourly average of 60 minutes
Agilaire : SIGTHETA
001h - Hourly average of 60 minutes
Agilaire : SOLARRAD
001h - Hourly average of 60 minutes
Agilaire : SWSP
001h - Hourly average of 60 minutes

Parameter Tag Editor in the List Editors Menu

Unit Editor

The **Unit Editor** in the **List Editors Menu** lists **Units** used in AirVision, the **Unit Type**, **Slope**, **Intercept**, and **Description**. To add a Unit, click on the asterisk on the bottom line.



Unit Name	Unit Type	Slope	Intercept	Description
LPM	Unknown	1	0	Liters per minute
L/M	Unknown	1	0	Liters per minute
MVOLTS	Unknown	1	0	Millivolts
Langleys	Solar Radiation	0.001434	0	Langleys per hour
M/SEC	Speed	3.6	0	meters per second
MG/M3	Mass Concentration	1000	0	milligrams per cubic meter
INHG	Pressure	25.4	0	inches mercury
%FS	Unknown	1	0	Percent Full Scale
None	Unknown	1	0	Alternate One Description
COUNT	Unknown	1	0	Count
DEG	Temperature	1	0	Degrees
DEGC	Temperature	1.8	0	Degrees Celsius
DEGF	Temperature	1	32	Degrees Farenheit
Hz	Unknown	1	0	Hertz
INCHES	Distance	1	0	Inches
INH2O	Pressure	1.868	0	Inches Water
KPH	Speed	1	0	Kilometers per hour
KW/M2	Solar Radiation	1	0	1000 watts per square meter
M3	Unknown	1	0	Cubic Meters

Unit Editor in List Editors Menu

Chapter 7

Additional Features

The following additional features are available in the **Utilities** menu:

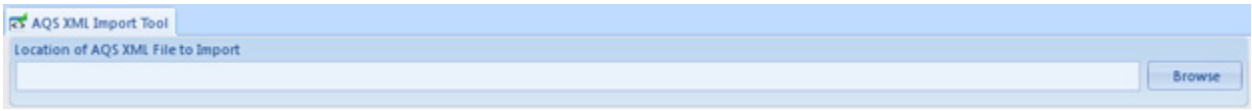
- AQS XML Import Tool
- Fill Data Gaps
- Table Import/Export

AQS XML Import Tool

AQS XML Data is imported by matching the codes in the file with the codes set in the sites and parameters so data is imported to the correct location in the database.

To run the **AQS XML Import Tool** from the **Utilities** menu

Click the Browse button to bring up a Select Import File box to locate the AQS XML file that you want to import. Once the file has been selected, the file name and path will be displayed. Select the Process Import button on the left side on the Ribbon above the Main Navigation menu.



AQS XML Import Tool from Utilities menu

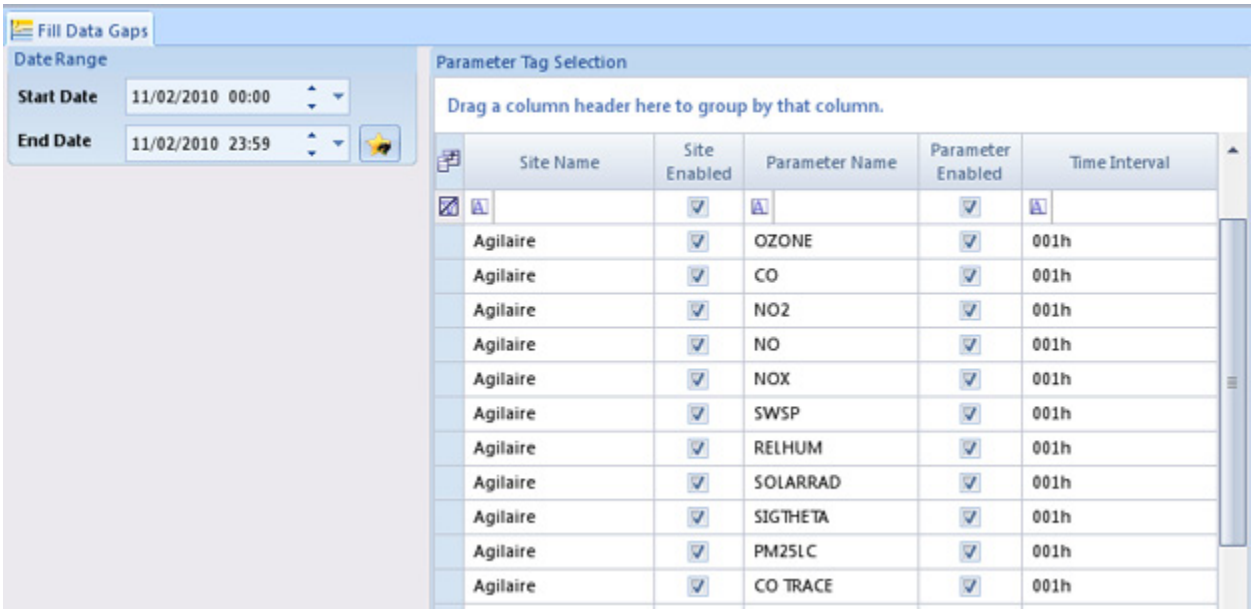
AQS Text Import Tool

The AQS Text Import Tool works much like the AQS XML import tool, but can also import sample data records (the XML Import tool is currently limited to just averaged data). The import tool compares Site Codes, Parameter Codes, and POCs with the Parameter Configuration to find the correct site and parameter to associate with the imported data records.

Fill Data Gaps

The **Fill Data Gaps** utility from the **Utilities** menu generates empty data records that are placeholders to ensure data is continuous in reports even where data is missing. To make sure there are no gaps in reports, **Fill Data Gaps** should be set in the **Task Scheduler** to run daily, especially on the first day of polling.

In the Fill Data Gaps screen, select the Start and End Dates, select the sites and parameters to be enabled, and click the **Create Data** button on the Ribbon above the Main Navigation menu. The range of the query will determine how long the process requires. When it is finished the progress bar will disappear.



Fill Data Gaps from the Utilities menu

Table Export

⇨ **Important!** Table Export/Import should be used only when advised by Agilaire support staff.

The **Table Export** tool allows any table in the AirVision database to be exported in XML format. It can be useful for copying system configuration settings for archive purposes or for transmission to Agilaire support staff for troubleshooting.

Select a table or tables, designate a destination folder, and click the **Process Export** button to export. One file is created for each table, so an export of multiple tables is best contained in a designated folder.

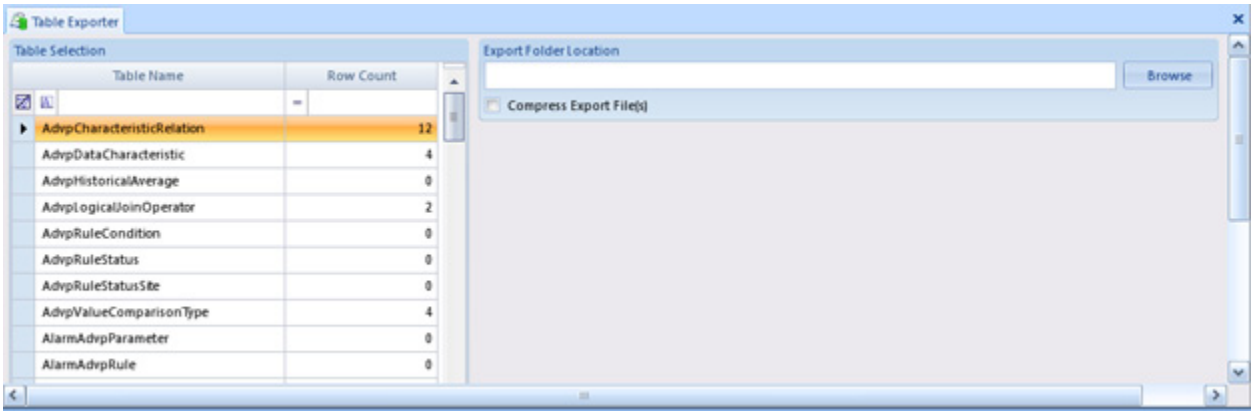


Table Export from Utilities menu

needs updated for Database Export menu item

Table Import

⇨ **Important!** Table Export/Import should be used only when advised by Agilaire support staff.

The **Table Import** tool allows any table that has been exported from the AirVision database to be imported in XML format. It is useful for importing previously exported system configuration settings to archive or for Agilaire support staff to troubleshoot.

Browse to select a table and the path will be displayed in the **Location of Table Export File to Import** field. Click the **Process Import** button to import the file. One file is created for each exported table, so tables must be imported one at a time.

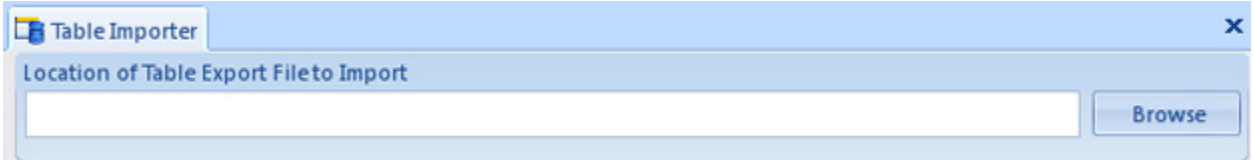


Table Import from Utilities menu

need to add Average Data Archiver option

Chapter 8

Optional Features

AirVision can provide additional features according to the terms of your contract with Agilaire. For more information, contact Agilaire at 927-9440 or info@agilairecorp.com. This chapter describes the following features:

- AirVision's optional patented **Automatic Data Validation Processor (ADVP)**
- **File Import Configuration Editor**, which enables you to develop a File Import Template for the File Import Tool
- **File Import Tool**, which automates data import from a variety of data sources
- **P & A (PARS) Editor**, which allows administrative personnel to create data records that are used later to submit RA (accuracy) and RP (precision) records to the Air Quality System (AQS).
- **Data Rollup Processor**, which allows shorter term averages to be rolled up into larger block or rolling averages.
- **Enhanced File Import Too**l in AirVision 2.3 handles new data types better, especially for PM lab samples and Air Toxics.

add Asset Tracking

Automatic Data Validation Processor (ADVP)

AirVision's optional patented Automatic Data Validation Processor (ADVP) allows an unlimited number of logical rules to be applied to data, resulting in data that is flagged, graded, annotated, coded, and/or emailed to designated users.

Each ADVP rule consists of two main components: a **trigger** and a resultant **action**. If the conditions of the trigger are met for a given data point, the action is taken; if not, nothing happens, and the next rule is evaluated. A trigger consist of a number of conditions linked by logical combination (e.g., AND/OR).

The following is an example of a data rule:

> If Ozone is greater than 50 ppb and the ambient temperature is less than 72 degrees F, then mark the data suspect.

The **trigger** is composed of the following two conditions:

> If Ozone is greater than 50 ppb (Condition #1)|
> AND
> the ambient temperature is less than 72 degrees F (Condition #2)

The **action** is:

mark the data suspect data

▶ **Note:** multiple AND/OR links are evaluated in sequential order. For example, a four-condition trigger such as:

Condition 1: 1 > 2 link AND
Condition 2: 2 > 3 link: OR
Condition 3: 3 > 4 link: AND
Condition 4:

Is evaluated as follows:

> (((Condition1 AND Condition 2) OR Condition 3) AND Condition 4)
>
> in other words, having Condition 3 and 4 as true would cause the action to be taken.

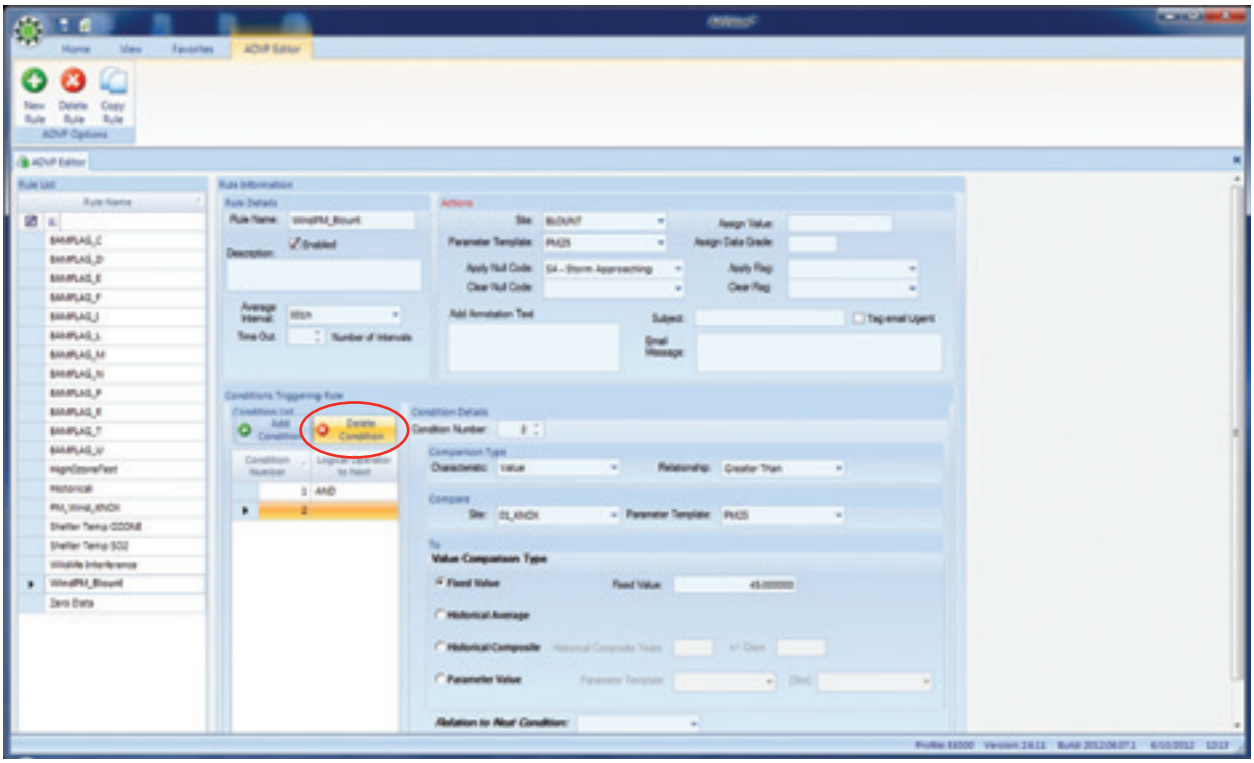
Each trigger condition uses a Parameter Template, and optionally can be associated with a particular site. If the site field is left blank, the rule is applied to all sites with parameters that match the templates.

Example: To do a simple wind vane stuck rule, you could point at the parameter template for WDR and set the trigger condition to be Variance, Less Than, 5%.

To create the rule, click the **New Rule** button on the ribbon, and we give the rule a name and enable it. Designate the average interval, and hit the **Save** button to add the first condition by clicking the **Add Condition** button at the bottom.

Fill in the first condition and select **Variance** for the **Characteristic**, set the **Relationship** to **Less Than**, and designate the **Parameter Templat**e to apply. Finally, set the limit for the comparison to 5%.

NOTE: conversion to InDesign included this pink text. It did not appear in previous PDF. Leave in or take out?-K



▶ **Note: Delete Condition** button can be used to remove a condition that is no longer desired.

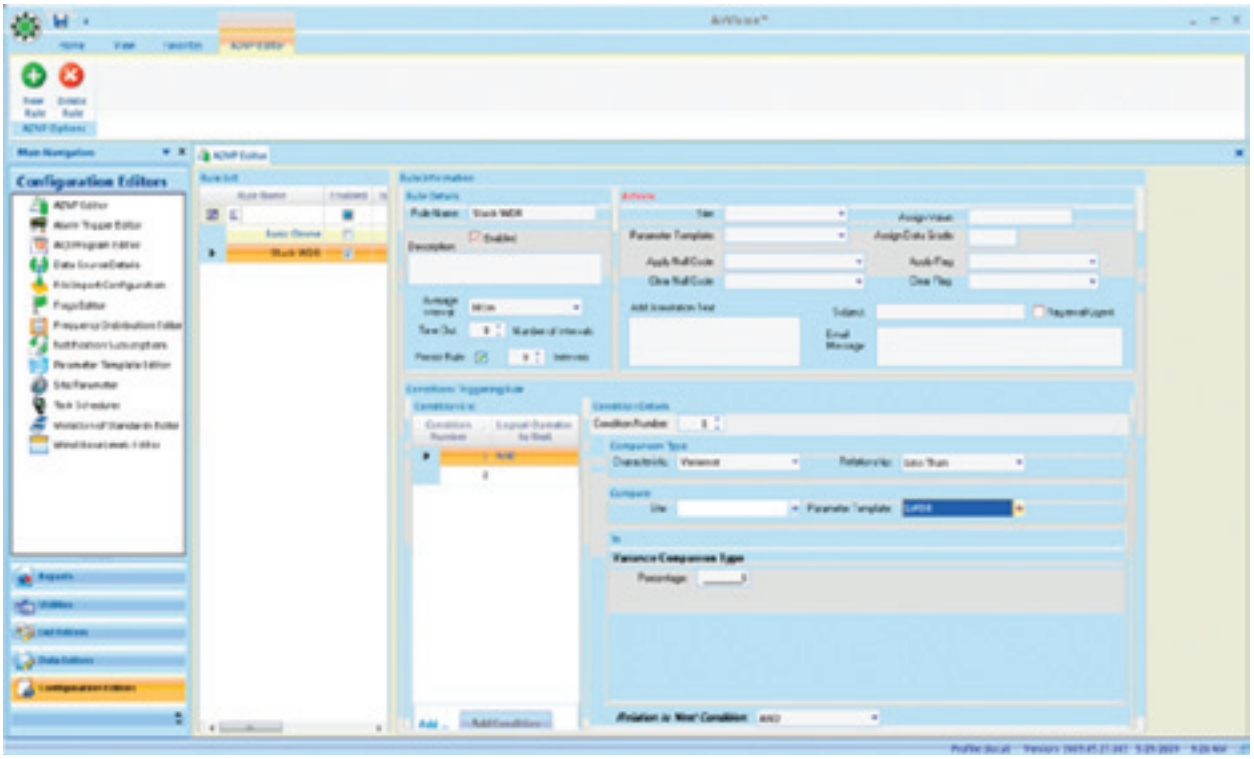
The trigger condition can use certain characteristics and make certain comparisons:

Characteristic	Comparisons Allowed	Compared To
Average Value	Greater Than Less Than Equals Differs Greater Than Differs Less Than	Another Parameter (Template), same site or specified site. Historical Average (fixed historical averages- see end of chapter) Historical Composite (a dynamic average of previous years of the same date/hour, similar to the Historical Composite used in the Average Data Editor.
Flag	Contains Doesn't Contain	List of logger/system flags
Annotation	Contains Doesn't Contain	User-defined text
Variance (change from a previous average value)	Greater Than Less Than Equal To	User-defined percentage

Example: To do a simple wind vane stuck rule, you could point at the parameter template for WDR and set the trigger condition to be Variance, Less Than, 5%.

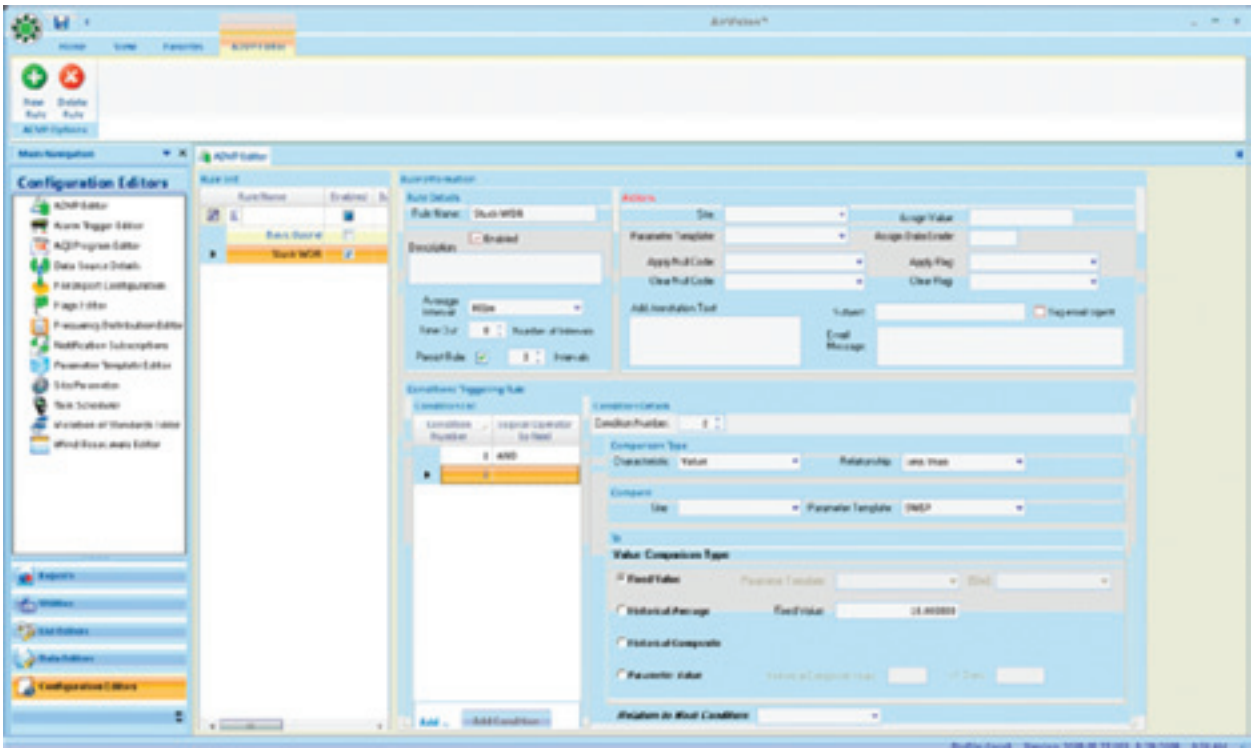
To create the rule, click the **New Rule** button on the ribbon, and we give the rule a name and enable it. Designate the average interval, and hit the **Save** button to add the first condition by clicking the **Add Condition** button at the bottom.

Fill in the first condition and select **Variance** for the **Characteristic**, set the **Relationship** to **Less Than**, and designate the **Parameter Templat**e to apply. Finally, set the limit for the comparison to 5%.



Stuck Wind Direction Program in ADVP Editor

The rule can be further improved by adding another condition that the wind direction be below a value, for example, 10 mph, to avoid cases of steady winds accidentally triggering the rule. Set the **Relation to Next Condition** at the bottom to **AND**, and use **Add Condition** to create, filling in the values and designated WSP for the comparison parameter template. Since you are using parameter templates, this one rule can be applied to all sites where WSP and WDR labeled parameter exist.

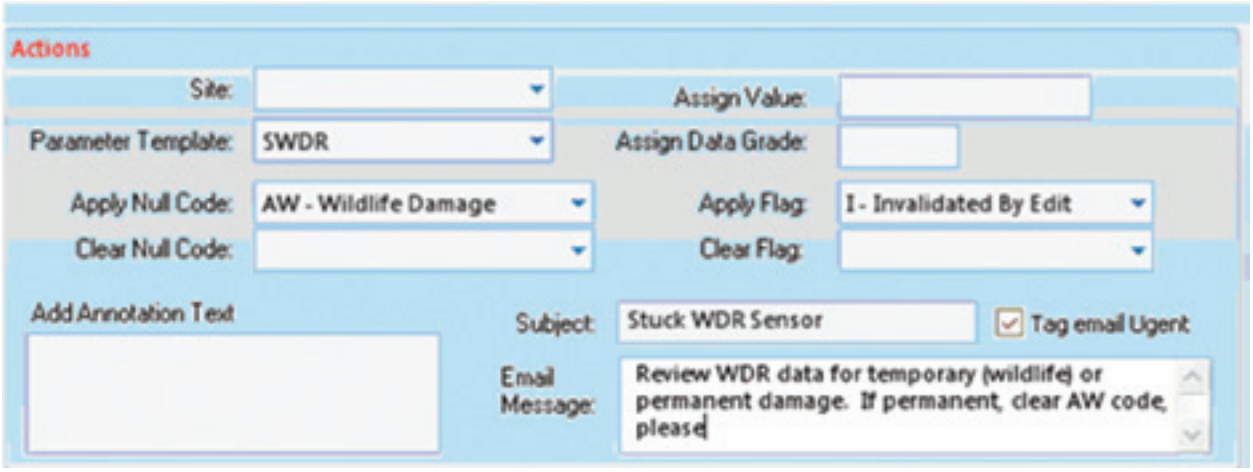


Further improving the ADVP setup

Actions can consist of any or all of the previous steps, and they can be applied to any parameter (template), not necessarily the one that triggered the rule:

- Assign a Fixed Value
- Apply a Flag
- Clear a Flag
- Apply a Null Cole
- Clear a Null Code
- Add Annotation Text
- Assign a data Grade (1 .. . 10)
- Send an Email via Subscriptions Notifications

The action can be applied to any parameter at the same site, or a specific site can be designated (most likely approach). In the previous example, you could mark data invalid and set the null code AW for Wildlife Damage. You could optionally email QA, in case the sensor failed.



Setting Null Code and emailing QA as a result of ADVP rule

Time-specific rules (day/night, rush hour)

Agilaire is planning to expand Version 2 of the ADVP to include time-specific rules. For Version 1 of AirVision, Agilaire recommends using the Math Pack function in the data logger to use HRDAY() to determine the hour of the day, daytime, nighttime, etc. It is also possible to use the JULDAY() function in an equation to add a seasonal adjustment factor to HRDAY(), or to directly calculate sunrise/sunset.

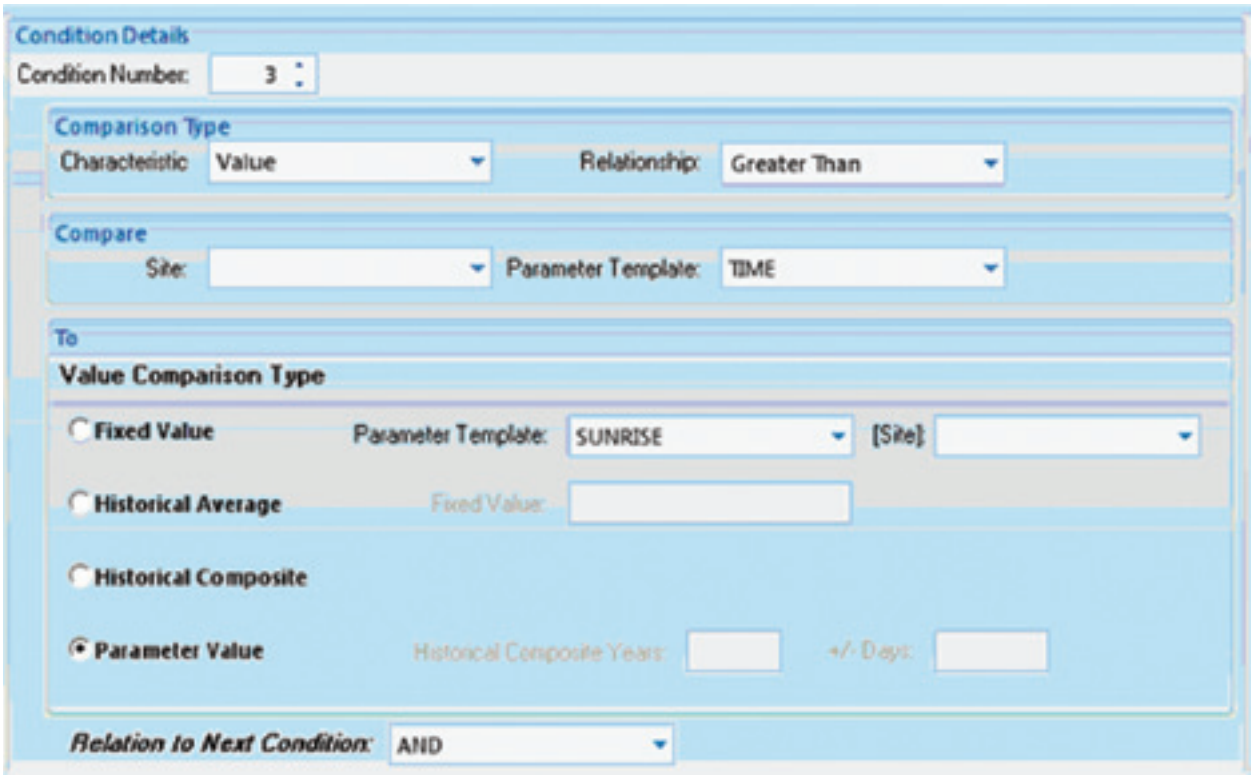
For example, you could go to http://www.arachnoid.com/lutusp/sunrise/, put in your location, and get a table of sunrise and sunset times. (You will need to know your latitude and longitude before you can generate the table). In Excel, you can use a graph trendline to develop a Math Pack equation to calculate sunrise and sunset times for any given day. For Knoxville, TN, the equation might look like:

SUNSET = 5E-09*JDAY()^3 - 6E-06*JDAY^2 + 0.0015*JDAY() + 0.7102

SUNRISE = 3E-06*JDAY^2 - 0.0012*JDAY + 0.3466

TIME = HRDAY() + MINHR() / 60

You can then add conditions to determine day/night conditions, such as illustrated below:



Adding conditions to determine day/night

Another condition for TIME < SUNSET can be added as well.

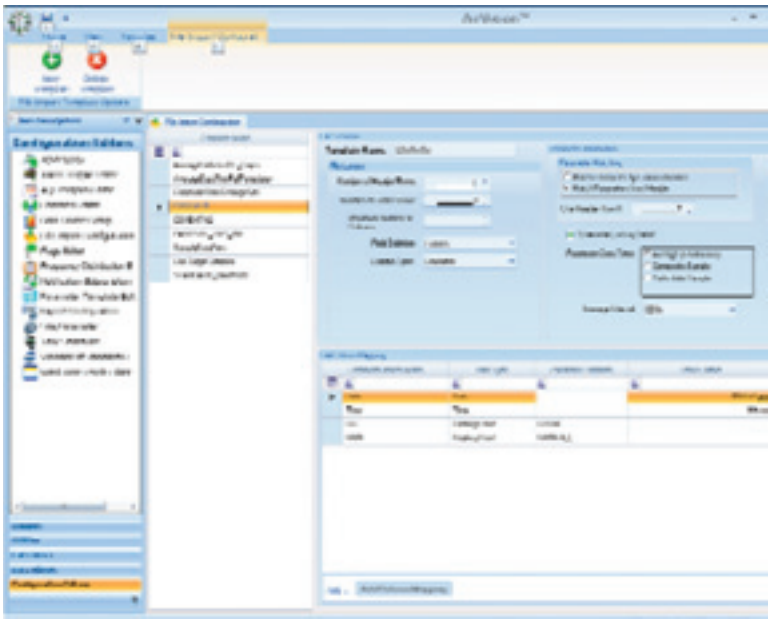
Suggestions for Initial ADVP Rules

- Flagging high pollutant values when environmental conditions would not allow those values, e.g., high ozone during low temperature.
- Flagging abnormal solar radiation during nighttime or rainfall
- Detecting stuck met sensors (frozen sensor, birds perching)
- Cross-flagging instrument diagnostic values to invalidate/mark suspect primary analyzer readings.
- Comparing nearby sites for similar parameters (ambient temperature, pollutant readings) and marking large differences as suspect.
- Checking sigma theta conditions against average wind speed, solar radiation, vertical wind speed, etc.
- Noting high PM concentrations during firework events, such as Fourth of July (Julian day = 185 in non-leap years)

File Import Configuration

AirVision allows you to create an import template for each site.Each template contains the actual hard links to the parameter/average interval combination (e.g, dbs ID). To configure an import template:

- From the **Configuration Editors** select **File Import Configuration** and either select a previously configured template from the sidebar or click the **New Template** button from the upper section of the screen.
- In the **File Schema** section:
- Enter a **Template Name** and select the **Number of Header Rows** to skip before parsing data and the **Number of Footer Rows** to ignore at the end of file.
- Select a **Maximum Number of Columns** to allow
- Select a **Field Delimite**r to determine how imported data is delimited (comma or pipe)



File Import Configuration

- Select a **Sample Type** (**Standard** or a particular custom type)
- Select whether parameters will be matched by **Column Number** or **Header Name** or **Row**.
- Click the check box if you want to **Overwrite Existing Data** during the file import. This selection only applies when using the manual **File Import** function in the **Utilities** menu; it does not apply to File Imports performed by the Instrument Polling system.
- Select a **Parameter Data Type**--**Average (Continuous)** with an **Average Interval**, **Composite Sample** with a **Composite Type**, or **Particulate Sample** with the **Duration and Frequency Codes**. An appropriate drop-down list will be displayed according to the data type selected.
- In the **File Column Mapping** section, column headings include **Data Type**, **Parameter Template**, and **Parse Format**. **Parameter Match Name** and **Column** vary according to which type of Parameter Matching was selected in the Parameter Information section.
- To add a column mapping row, click the **Add Column Mapping** button at the bottom of the screen. A blank row will be added to the table.

Click the **Save** icon in the upper left corner of AirVision to save changes to the database.

Configuring File Import Templates

AirVision's File Import Tool (**Configuration Editors** > **File Import Tool**) automates data import from a variety of data sources. AirVision allows your to define a template describing the layout of particular files so files can be automatically imported into the database. With this system, particulate and laboratory data can be copied into a folder to be imported into AirVision.

The standard File Import Tool assumes that data is arranged using different parameters as columns and different points in time as rows. This arrangement matches most instrument outputs, filter data sets, and other commonly accessed data. The Advanced File Import Tool (Version 2 of AirVision) is used where each data point exists as an independent row, with columns representing different aspects of that data point (value, null code, sample time), as with air toxics data.

To eliminate the need to create individual templates for each site (to define site/parameter associations), the File Import tool maps columns to Parameter Templates, not any individual site/parameter combination. Thus a single template can be applied to any site in the system. However, you must have a parameter template defined for each column that you want to import, either one of the AirVision defaults or one you add through the Template Editor.

Creating a Template

AirVision is pre-loaded with some common instrument templates (BAM-1020, Thermo TEOM and Partisol 2025 FRM interval data). To create a new template, open **Configuration Editors** > **File Import Configuration**.

Click the **New Template** button on the ribbon to create a new template. Red exclamation point icons (**!**) indicate the following required fields in the **File Schema** section of the screen:

- **Template Name**
- **Number of Header Rows** (rows to skip before importing data). Even if the value is zero, this value has to be edited to be saved.
- **Number of Footer Rows** (rows at the end of the file to skip). Even if the value is zero, this value has to be edited to be saved.
- **Field Delimiter** (comma or pipe)
- **Sample Type** (select "Standard" unless you have a customized driver)
- **Parameter Data Type** Average (Continuous), Composite Sample, or Particulate Sample

Optional fields are:

- **Maximum Number of Columns**
- **Parameter Matching** (match parameters by column number or header)
- **Overwrite Existing Data** If selected, an import will overwrite data that is already in the database. If de-selected, the import will skip data points where data already exists.
- Based on the **Parameter Data Type**, select one of the following:
  Average Interval (for Average/Continuous Data)
  Composite Type (for Composite Data)
  Duration and Frequency Code (for Particulate Sample).

After the basic template is completed, **Save** the template to enable the "Add Column Mapping" button at the bottom. Column Mapping cannot be done until the base template is saved.

Mapping Columns

If you want imported data to go in specific columns, save the File Schema entries (top half of the screen) and click the **Add Column Mapping** button at the bottom of the screen. Enter the following information:

- **Column Number** for each column in the file where you want data to be imported. Not every column needs to be configured (e.g., if you only want columns 1, 2, and 5 out of a 10-column file, only those 3 records need to be configured).
- **Data Type** Select one of the following from a drop-down list:
  Date
  Time
  Date and Time
  Floating Point Value (to map to a parameter)
- **Parameter Template** can be selected from a drop-down list of all parameter templates only if you selected Floating Point Value for the Data Type
- **Parse Format** can be selected for date and/time data only (not floating point); for example, MM/dd/yyyy HH:mm. Select from a drop-down list.

Click the **Add Column Mapping** button to add another record.

To delete a column mapping record, select the row and press the **Delete** key on the **keyboard**.

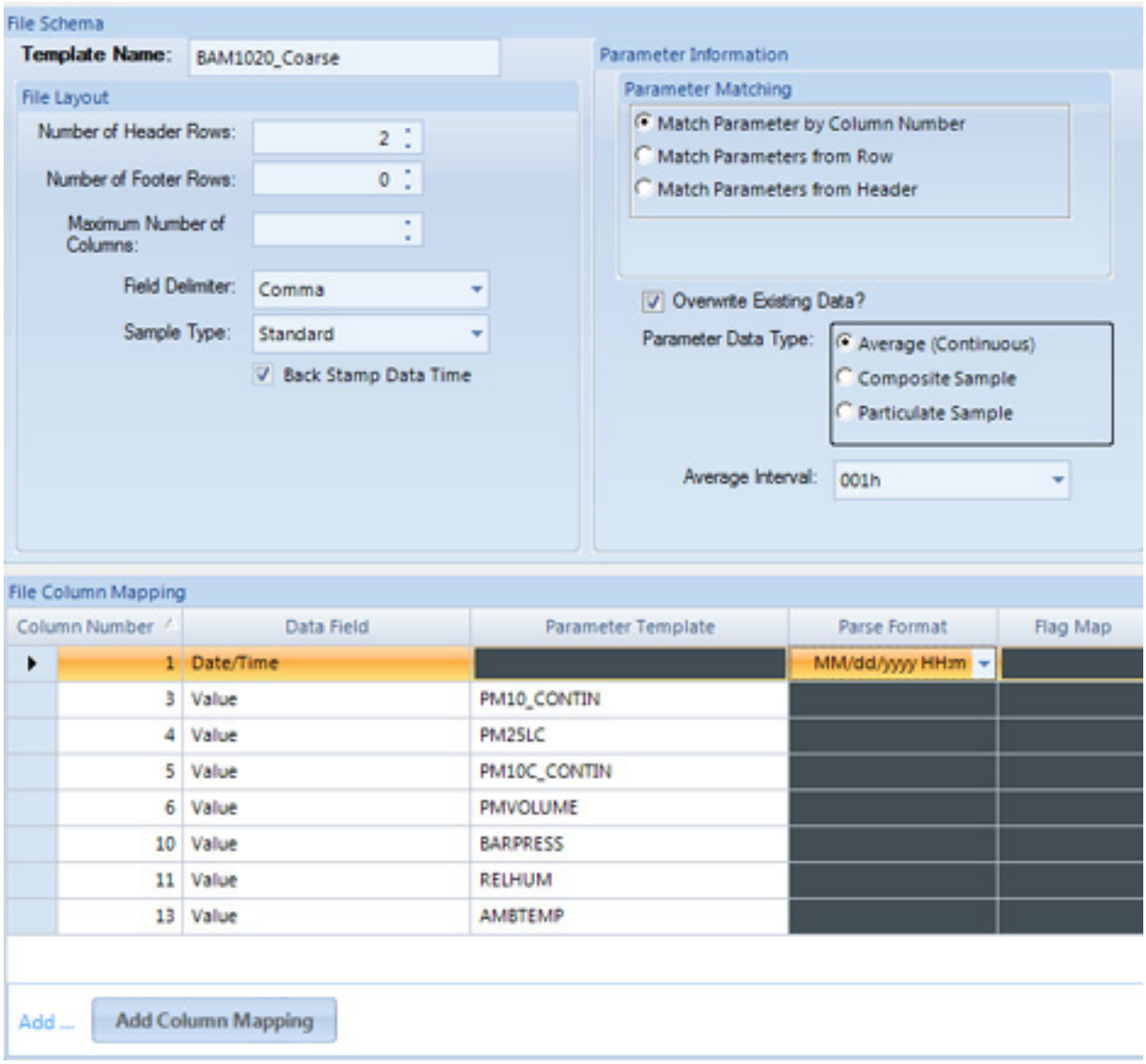
To delete an entire File Import Template, select it from the **Template Name** section of the screen and click the **Delete** button in AirVision.

Save the template again. Use the **Manual File Import** tool to test your file import template.

Enhanced File Import Tool

In Version 2.3, AirVision significantly enhances the **File Import Tool** (**Configuration Editors > File Import Tool**) to better handle new data types, primarily meta data for PM lab sample data and AirToxics data.

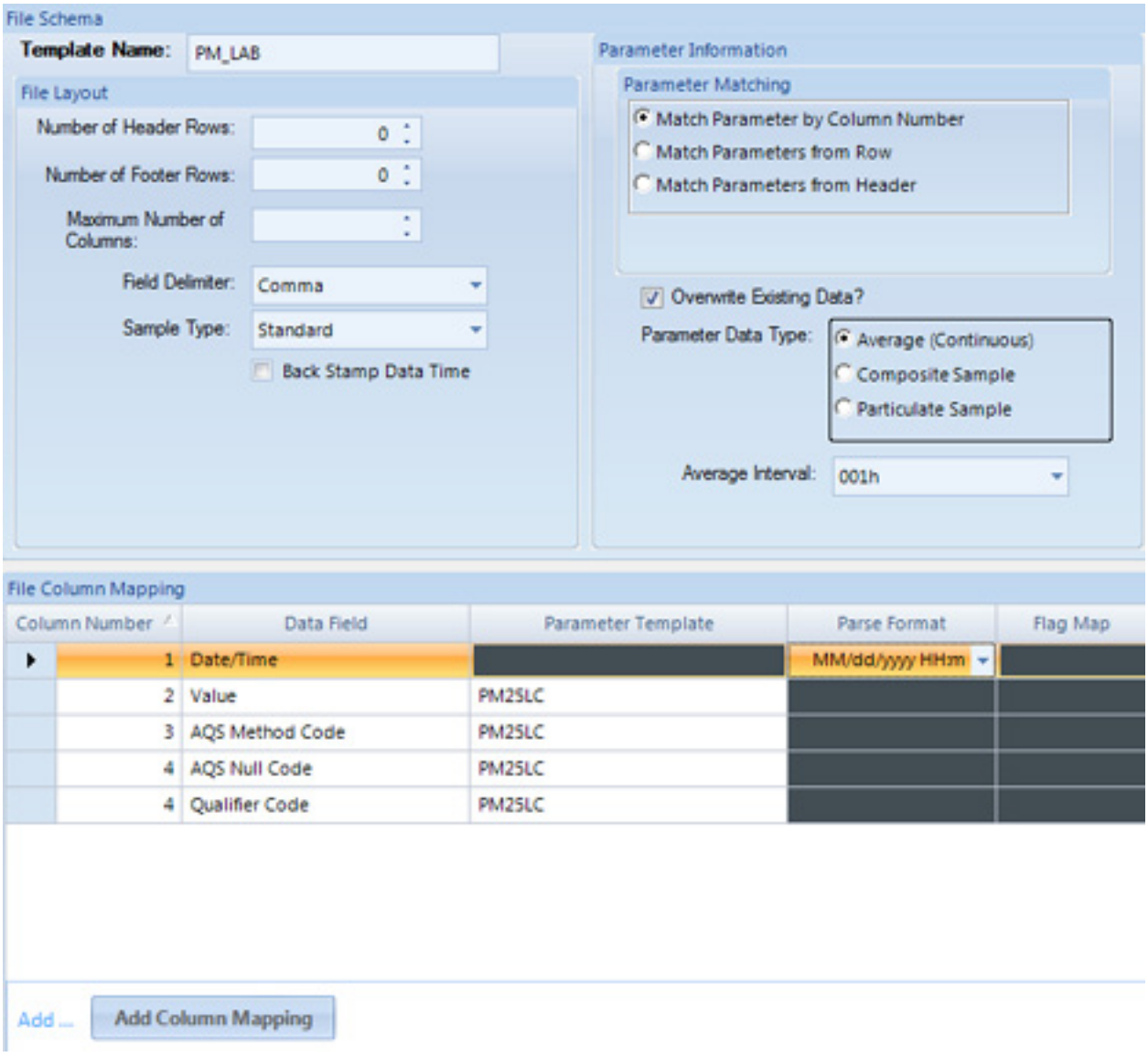
In the original model, the File Import Tool assumed each row in the file contained data for different parameters, and could only import the numerical values for that data, as in the following example:



Example of File Import Tool before AirVision Version 2.3

In the Enhanced Tool, the 'several parameters on one row' templates have been enhanced to be able to denote that columns represent additional data properties for the parameter data point, including:

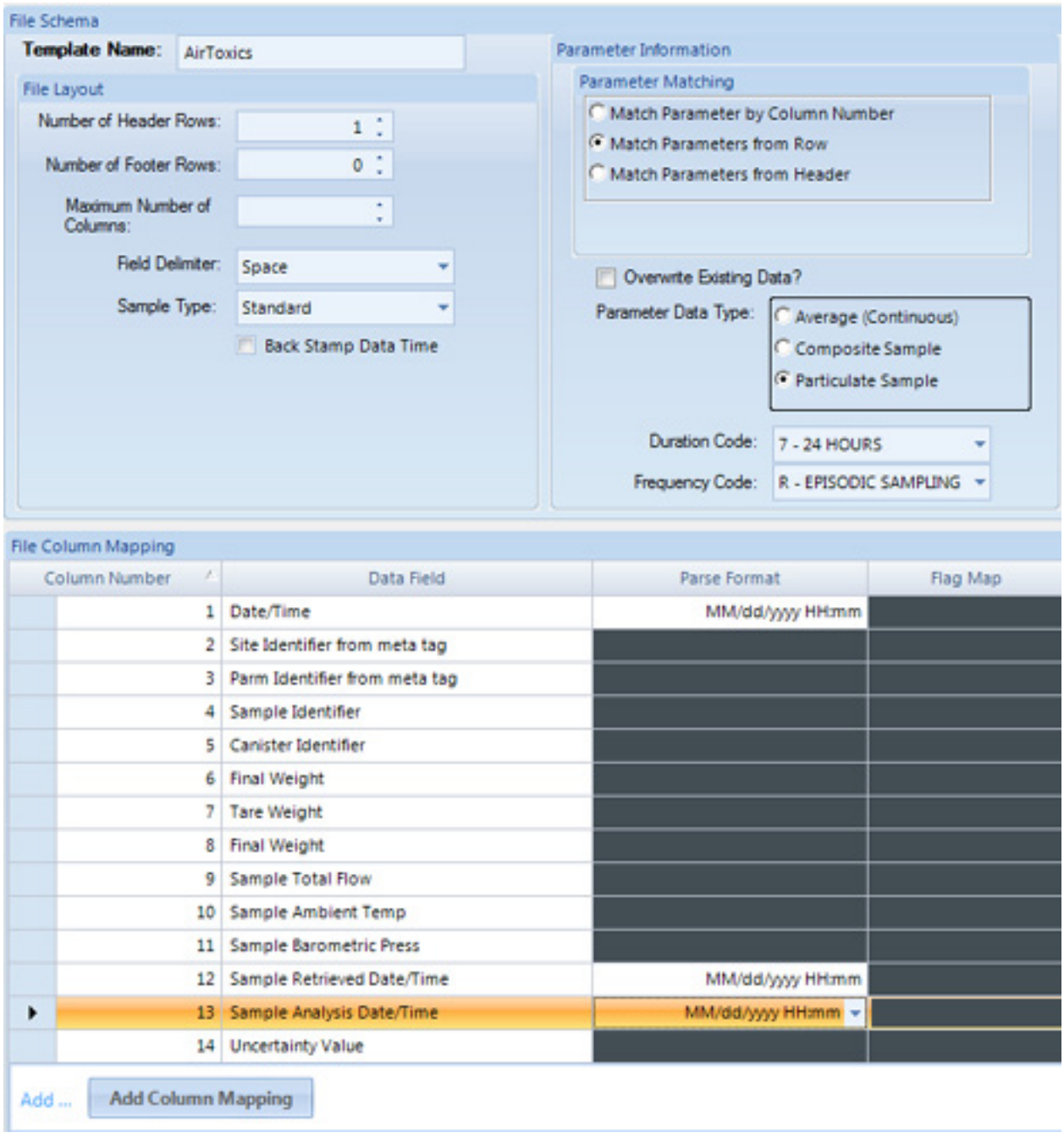
- Flags (see "Flag Mapping Table" below)
- AQS Method Code
- AQS Null Codes
- Qualifier Code (one)



Enhanced File Import Tool in the Utilities menu

The Enhanced File Import Tool also includes the capability to do 'row-wise'import, where a single row represents a single data point, with several additional properties associated with that single data point. This is a common case for air toxics data. In this mode, it is even common to have the same file represent multiple sites and parameters, so it is necessary to create a key string for each site/parameter to match the identifier that is used within the imported file.

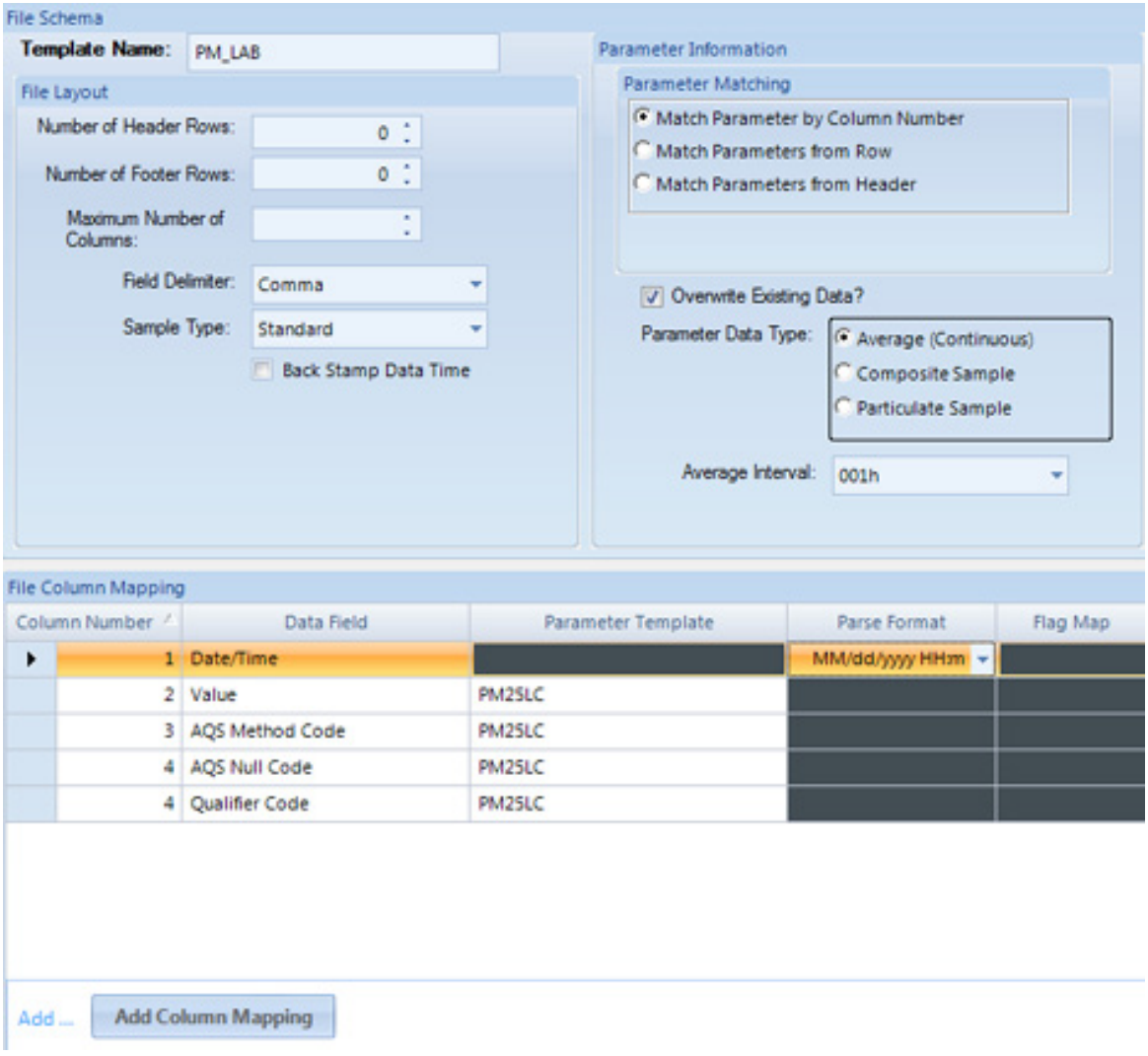
First, go into the **Site/Parameter** editor and use the 'Metatags'editor at the bottom of the Site form and the Parameter form to identify the string in the imported file. Once this is done, set up a template to look for that particular string in the file:



Template for File Mapping

Available Fields include:

- Site / Parameter Identifier (by meta tag)
- Flag
- Final Value
- Tare / Final Weight
- Sample Volume, Temp, Barometric Pressure
- Null Code, Qualifier Code
- Sample ID, Cannister ID
- Parameter Occurrence Code (POC)
- Sample Retrieved Date, Time, Date/Time
- Sample Analyzed Date, Time, Date/Time
- Minimum Detectable Value
- Uncertainty
- Frequency Code
- Duration Code
- Sample End Date, Time, Date/Time



Enhanced File Import Tool in the Utilities menu

▶ **Note:** To import the POC, a meta tag must be created at the bottom of the parameter record that uses 'POCIdentifier' in the "Name" field, with the POC Value set to 1, 2, 3, etc.

Flag Mapping Table

Some devices provide data flags in the form of a string, which can be mapped into AirVision's standard flags. Supported formats include:

- Binary string (e.g., "1101010", where each digit represents presense/absence of a flag)
- Hex (e.g., "1F0A", were each hex char represents a 4-bit binary map, each bit = 1 flag)
- Decimal Binary (e.g., "1024", where if the decimal number is converted to binary, each bit represents a possible flag
- String (e.g, "FD<", where each character represents a flag, but does not map equally to AirVision's standard flag table.

By allowing the user to create a table to map the instrument's particular flags to AirVision's flags, each Flag Mapping Table can be referenced in the File Import Tool to map that column and its content into AirVision flags (**Configuration Editors > Flag Mapping Editor**).

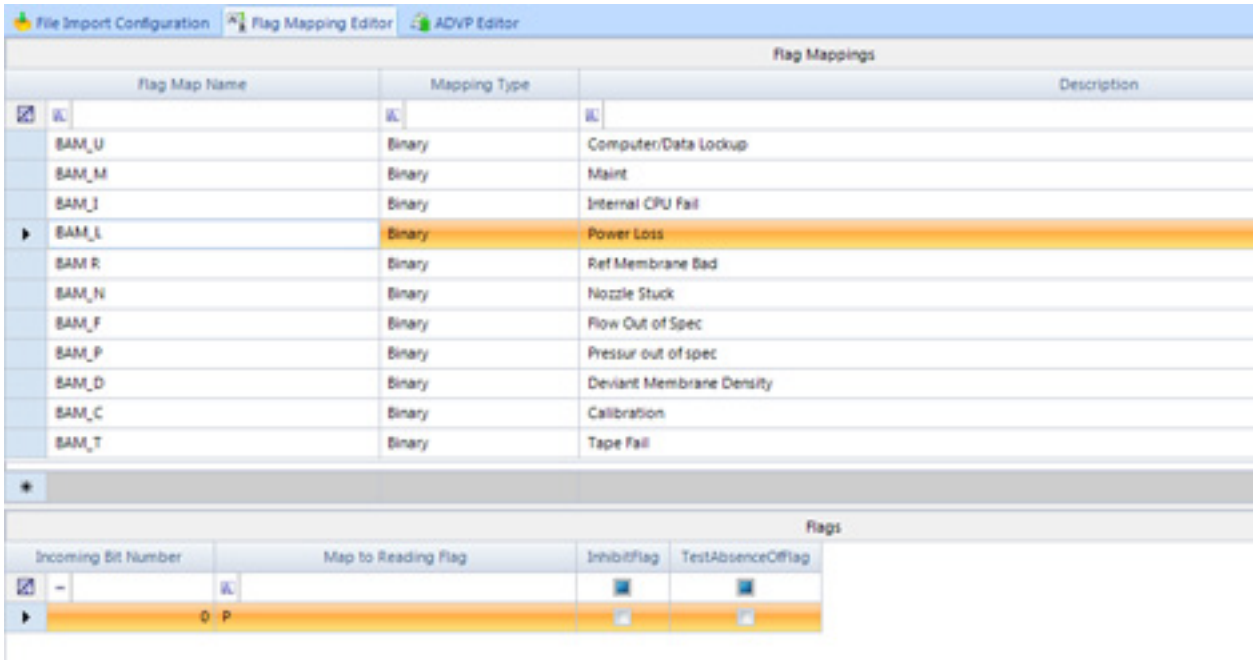
For example, the Met One BAM provides a series of "1"and "0"fields to represent flags in the BAM.

Station, 1

Time,Conc(mg/m3),Qtot(m3),no(V),WS(MPS),WS(MPS),RH(%),Delta(C),WS(MPS),E,U,M,I,L,R,N,F,P,D,C,T,

02/06/09 12:00, 0.380, 0.000, 0.189, 2.5, 2.2, 31, 52.7, 35.9,0,0,1,0,0,0,0,1,0,0,0,1,

Since each column maps to a different flag, we actually have to create multiple Flag Map table entries and map each column to its own flag map. Example:



Flag Mapping Table

However, Met One is considering an ‘all in one’ field, where the commas are removed and the binary pattern is given in one column, e.g.:

Station, 1

Time,Conc(mg/m3),Qtot(m3),no(V),WS(MPS),WS(MPS),RH(%),Delta(C),WS(MPS),FLAGS

02/06/09 12:00, 0.380, 0.000, 0.189, 2.5, 2.2, 31, 52.7, 35.9,001000010001,

This makes the flag map table easier--only one entry. Note that we define bit 0 as the rightmost bit, and bit N as the leftmost bit, which is actually the opposite of the way the old string is listed.

P & A (PARS) Editor

Precision and Accuracy (P & A), formerly Precision and Accuracy Reporting System (PARS), is a utility that allows administrative personnel to create data records that are used later to submit RA (accuracy) and RP (precision) records to the Air Quality System (AQS). P&A is collected to ensure that data collected at monitoring sites is of high quality. Systems of checks produce data that reflects the results of these evaluations. Data edited in the PARS Editor will not be published on the public website; the PARS Editor is a tool for administrative access only.

PARS Precision Editor

Precision checks are determined by performing repeated measurements of ambient-level "calibration" gases at two-week intervals for continuous analyzers, or by obtaining duplicate results from collocated samplers for manual methods. The Precision Data record is uniquely identified by the combination of monitor and date.

Precision records have a single value for each record representing Actual and Indicated values with Indicated values coming from a co-located sampler/analyzer similar to the primary (actual reading) analyzer. The Precision Report displays a daily listing of reported precision data in a tabular format. The report displays the sample values entered into the system and then calculates a percent difference between the reported values, consistent with the requirements of OAQPS (Office of Air Quality Planning and Standards) Quality Assurance guidelines.

The PARS Precision Editor lists parameters in a table along with their **Duration Code**, **Precision Check Date**, and **Precision Identifier Number**. The parameter that is selected (by clicking **Select** in the left column of the table) will be displayed below the table with the following information:

Precision Test Information

- Precision Check Date: The calendar date for which the accuracy audit information pertains.
- Precision Identifier Number: A sequentially assigned number used to identify a particular precision check from others, when multiple checks are performed on the same day
- Precision Sample Identifier: The unique identity (ID) number of the reference sample used to challenge the instrument
- Precision Type Identifier: Describes the type of precision test performed
- Audit Agency Code: Agency responsible for performing a role for the monitor

Monitor Information

- Parameter: The code assigned to the parameter measured by the monitor. (A "monitor" in AQS represents not a device but the pollutant measured by a device.) Parameters may be pollutants or non-pollutants.
- Duration Code: The length of time (interval) used to acquire raw samples that are analyzed by monitors
- Parameter Type: A description of the type of parameter (e.g., ozone)
- Unit Code: AQS code for the standard parameter unit (e.g., ppm)

- POC: Parameter Occurrence Code (or Pollutant Occurrence Code), an identifier used to distinguish between multiple monitors at the same site that are measuring the same parameter. For example, the first monitor established to measure carbon monoxide (CO) at a site could have a POC of 1. If an additional monitor is established at the same site to measure CO, that monitor could have a POC of 2. However, if a new instrument is installed to replace the original instrument used as the first monitor, that would be considered the same monitor and it would still have a POC of 1.

  For criteria pollutants, data from different sampling methods should only be stored under the same POC if the sampling intervals are the same and the methods are reference or equivalent. For sites where duplicate sampling is being conducted by multiple agencies or by one agency with multiple samplers, multiple POCs must be utilized to store all samples.

  For non-criteria pollutants, data from multiple sampling methods can be stored under the same POC if the sampling intervals are the same and there is only one sample for the time reported. If multiple open path monitors are reporting data for the same parameter, each open path would be assigned a different POC.
- Actual Method Code: Identifies the particular method for collecting and analyzing a precision check value
- State Code: A Federal Information Processing Standards (FIPS) code that identifies one of the 50 states, U. S. territories, Washington, DC, or foreign countries. For batch loading data formats only, it may be set to TT to indicate that the County Code/Tribal Code field contains a Tribal Code.
- County/Tribal Code: A Federal Information Processing Standards (FIPS) code that identifies a county, or other geo-political entity, such as tribe, parish or independent city. For foreign countries, it identifies the geo-political equivalent to U. S. states, such as Mexican states or Canadian provinces.
- Site Code: A numeric identifier (ID) that uniquely identifies each air monitoring site within a county, and if it is a tribal site, within all counties included in a tribal area. There is no requirement that Site IDs be assigned continuously or in any particular order. Regional or local organizations are thus free to allocate Site IDs in any way they choose, as long as there is no duplication within a county or the counties that include a common tribal area.

  A specific Site ID is associated with a specific physical location and address. Any change in address requires a new Site ID to be assigned. This address change could include a change from the roof of one building to another. A change in location on the same roof should not normally require a new Site ID. Although an address change would routinely mean a new Site ID, some changes that do not change the site's location in respect to surrounding sources and its measurement scale would require no change. An EPA regional office should be consulted for assistance in determining whether a new site ID is required.

  If a new Site ID is needed for a site not operated by the air pollution control agency, that agency should be contacted to assist in the ID assignment, to ensure that the ID is unique within the county and, if appropriate, the adjoining counties sharing a common tribal area. In other words, when a new Site ID is assigned, it must be different from any other Site ID already existing for that combination of State Code and County Code and Tribal Area.

Collocated Monitor

- Collocated Parameter: The code assigned to the duplicate sampler that is paired with the primary monitor (i.e., routine monitor) to determine precision and accuracy data
- Collocated POC: The Parameter Occurrence Code (POC) of the duplicate sampler. Only applies to collocated data where the duplicate value is a recorded daily raw data point.
- Indicated Method Code: Identifies the particular method for collecting and analyzing a precision check value.

Test Results

- Actual Value: For precision and accuracy data the actual value is the concentration produced from the primary sampler (i.e., routine monitor) in a collocated sampler pair.
- Indicated Value: The measurement recorded by a monitor for a standard gaseous concentration with which it has been challenged.

PARS Accuracy Editor

Accuracy assessments indicate the agreement between an analyzer measurement and a known audit standard concentration for continuous analyzers, or the agreement between an observed value and a known or reference value for manual methods. An Accuracy Data record is uniquely identified by the combination of monitor, audit class, accuracy type, date, and Accuracy Audit ID Number.

Accuracy records are similar to calibration--up to five runs that categorize "Actual" values and "Indicated" values. Actual values are from the primary analyzer, while Indicated values are from some other external reference device. The Accuracy Report provides an output of raw accuracy value pairs and their percent differences. The data is grouped by Parameter, Tribal Area or State, and Reporting Organization.

The PARS Accuracy Editor lists parameters in a table along with their **Duration Code**, **Accuracy Date**, and **Accuracy Audit Number**. The parameter that is selected (by clicking **Select** in the left column of the table) will be displayed below the table with the following information:

Accuracy Test Information

- Accuracy Date: The calendar date for which the accuracy audit information pertains.
- Accuracy Audit Number: A sequentially assigned number used to identify a particular precision check from others, when multiple checks are performed on the same day
- Accuracy Type: A description of the type of accuracy test performed
- Local Primary Standard: A description of the source of the local primary standards
- Local Standard Expiration Date: The expiration date for the local primary standard
- Audit Sample Identifier
- Audit Scheduled Date
- Audit Type: Description of who performed the audit and how the audit standard was certified
- Audit Class: Description of the class of audit taken at the monitor

Monitor Information

- Parameter: The code assigned to the parameter measured by the monitor. (A "monitor" in AQS represents not a device but the pollutant measured by a device.) Parameters may be pollutants or non-pollutants.
- Duration Code: The length of time (interval) used to acquire raw samples that are analyzed by monitors
- Parameter Type: A description of the type of parameter (e.g., ozone)
- Unit Code: AQS code for the standard parameter unit (e.g., ppm)
- POC: Parameter Occurrence Code or Pollutant Occurrence Code, an identifier used to distinguish between multiple monitors at the same site that are measuring the same parameter. For example, the first monitor established to measure carbon monoxide (CO) at a site could have a POC of 1. If an additional monitor were established at the same site to measure CO, that monitor could have a POC of 2. However, if a new instrument is installed to replace the original instrument used as the first monitor, that would be the same monitor and it would still have a POC of 1.

  For criteria pollutants, data from different sampling methods should only be stored under the same POC if the sampling intervals are the same and the methods are reference or equivalent. For sites where duplicate sampling is being conducted by multiple agencies or by one agency with multiple samplers, multiple POCs must be utilized to store all samples.

  For non-criteria pollutants, data from multiple sampling methods can be stored under the same POC if the sampling intervals are the same and there is only one sample for the time reported. If multiple open path monitors are reporting data for the same parameter, each open path would be assigned a different POC.
- Method Code: Identifies the particular method for collecting and analyzing a precision check value
- State Code: A Federal Information Processing Standards (FIPS) code that identifies one of the 50 states, U. S. territories, Washington, DC, or foreign countries. For batch loading data formats only, it may be set to TT to indicate that the County Code/Tribal Code field contains a Tribal Code.
- County/Tribal Code: A Federal Information Processing Standards (FIPS) code that identifies a county, or other geo-political entity, such as tribe, parish or independent city. For foreign countries, it identifies the geo-political equivalent to U. S. states, such as Mexican states or Canadian provinces.
- Site Code: A numeric identifier (ID) that uniquely identifies each air monitoring site within a county, and if it is a tribal site, within all counties included in a tribal area. There is no requirement that Site IDs be assigned continuously or in any particular order. Regional or local organizations are thus free to allocate Site IDs in any way they choose, as long as there is no duplication within a county or the counties that include a common tribal area.

  A specific Site ID is associated with a specific physical location and address. Any change in address requires a new Site ID to be assigned. This address change could include a change from the roof of one building to another. A change in location on the same roof should not normally require a new Site ID. Although an address change

would routinely mean a new Site ID, some changes that do not change the site's location in respect to surrounding sources and its measurement scale would require no change. An EPA regional office should be consulted for assistance in determining whether a new site ID is required.

If a new Site ID is needed for a site not operated by the air pollution control agency, that agency should be contacted to assist in the ID assignment, to ensure that the ID is unique within the county and, if appropriate, the adjoining counties sharing a common tribal area. In other words, when a new Site ID is assigned, it must be different from any other Site ID already existing for that combination of State Code and County Code and Tribal Area.

Test Results

- Zero Span Value: A measurement obtained with gas from a zero concentration. Zero span is the observed value read from the instrument when the concentration of the specific parameter used to test the monitor was zero.
- Levels 1-5--Actual Value: For precision and accuracy data the actual value is the concentration produced from the primary sampler (i.e., routine monitor) in a collocated sampler pair.
- Levels 1-5--Indicated Value: The measurement recorded by a monitor for a standard gaseous concentration with which it has been challenged.

Data Rollup Processor

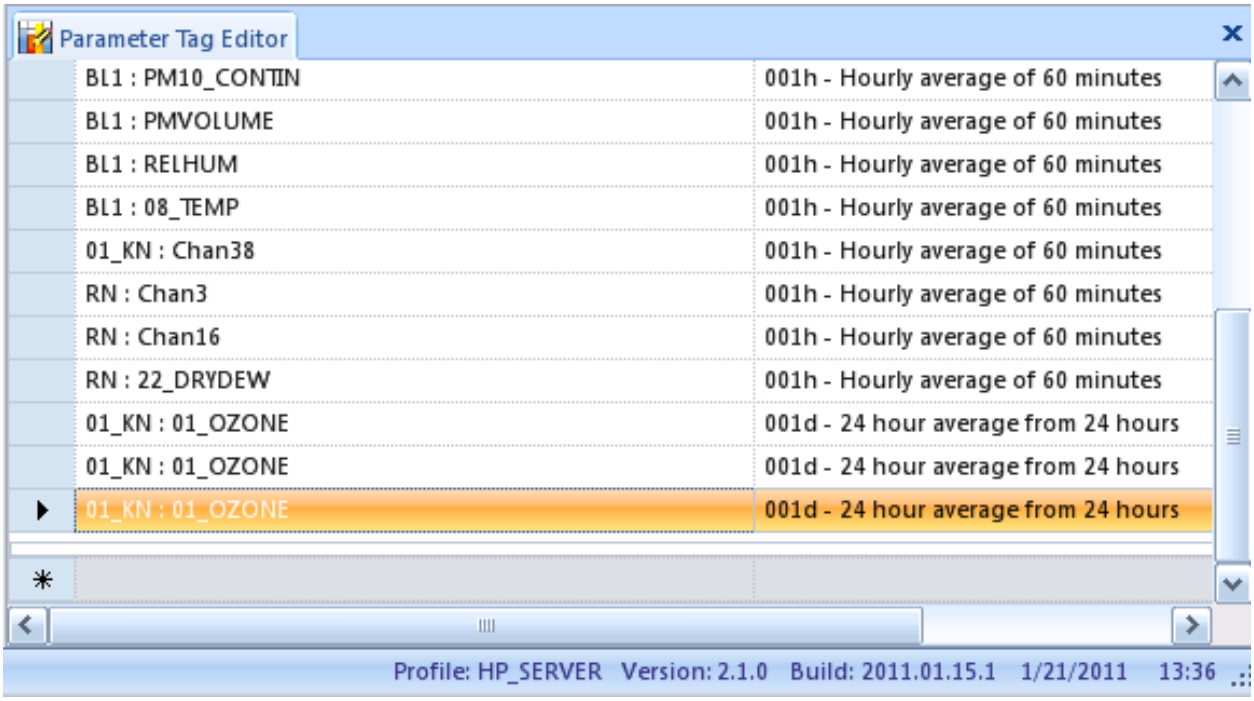
The Data Rollup Processor is an optional module, usually included as part of an Instrument Polling license. The Data Rollup Processor allows shorter-term averages to be rolled up into larger block or rolling averages. Examples of this would include:

Re-creating hourly data from 1-minute data
Rolling up 5-minute or other odd intervals from a directly polled instrument to hourly data
Rolling up hourly averages to daily averages
Creating a new parameter with an 8-hour rolling average (e.g., ozone) calculated within AirVision.

The calculation can be done both manually (**Utilities->Manual Average Data Rollup**) or it can be scheduled in **Configuration Editors>Task Scheduler**.

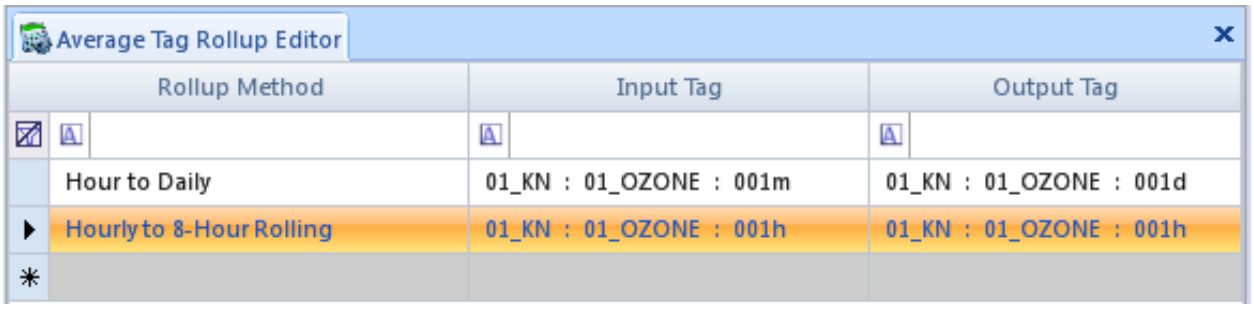
Before doing the calculation, set up the rollup programs and tie them to specific **Parameter Tags**. A **Tag** is a term for a combination of a parameter and an average interval (e.g., hourly ozone, 1-minute CO). The intervals are specific to the frequency at which data is inserted into the database, so the system can't distinguish between OZONE:1h that comes from a block average of minute data and OZONE:1h that is an 8-hour rolling average, updated on the hour. For rolling averages, create a new parameter in the Site/Parameter editor to store the rolling average data.

If you need to create new tags (e.g., create a daily average tag, or create the 1-hour tag for your new OZONE_8HR parameter), open **List Editors->Parameter Tag Editor**.


Parameter Tag Editor
BL1 : PM10_CONTIN
001h - Hourly average of 60 minutes
BL1 : PMVOLUME
001h - Hourly average of 60 minutes
BL1 : RELHUM
001h - Hourly average of 60 minutes
BL1 : 08_TEMP
001h - Hourly average of 60 minutes
01_KN : Chan38
001h - Hourly average of 60 minutes
RN : Chan3
001h - Hourly average of 60 minutes
RN : Chan16
001h - Hourly average of 60 minutes
RN : 22_DRYDEW
001h - Hourly average of 60 minutes
01_KN : 01_OZONE
001d - 24 hour average from 24 hours
01_KN : 01_OZONE
001d - 24 hour average from 24 hours
01_KN : 01_OZONE
001d - 24 hour average from 24 hours
Profile: HP_SERVER Version: 2.1.0 Build: 2011.01.15.1 1/21/2011 13:36

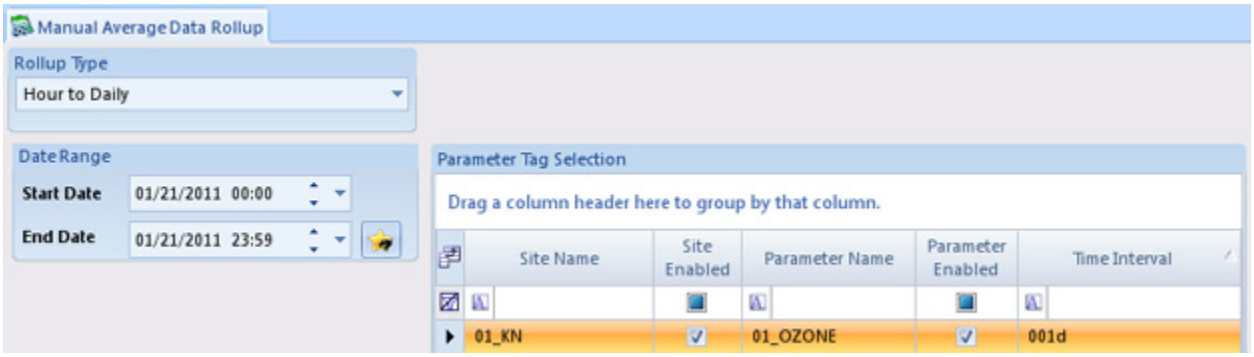
Create new tags in List Editors>Parameter Tag Editor

Once all the tags you need exist, use the **Configuration->Average Tag Rollup Editor** to create your new rollup programs:



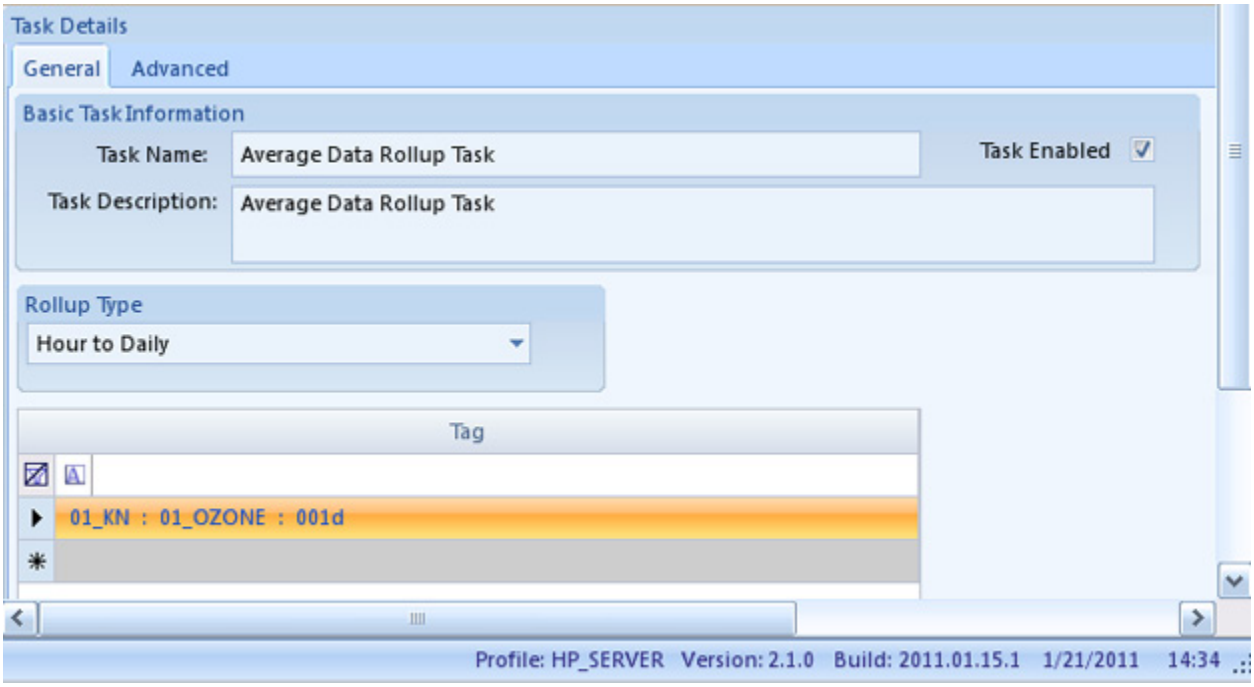
Utilities>Manual Average Data Rollup

To run a program manually, go to **Utilities>Manual Average Data Rollup**, select the **Rollup Type**, **Date Range**, and **Parameter Tag Selection**. Click the **Process Rollup** button.



To run a program manually, Utilities>Manual Average Data Rollup

To run a **Rollup Task** automatically, create a new **Average RollupTask** in **Configuration Editors>Task Scheduler>Average Rollup Task**, and select an **Average Data Rollup Task**. Then select the specific **Task Type**, **Start Time**, **Repeat Interval**, and **Task Description**.



Automatic Rollup Task in Configuration Editors>Task Scheduler>Add Average Rollup Task

Appendix

AQI Web Service

E-DAS Customers upgrading to AirVision will notice that the Access database has been replaced with the SQL Server database that now stores all data for the system. A variety of data views are available for querying the data for web publishing.

One data type that is dynamically generated but is not available in a view is the AQI. Since it is mostly used for web site publishing, we have simplified the access to that data by adding a Web Service to the regular AirVision service on the server. This web server does not require the installation of Internet Information Services (IIS). Rather, it is exposed via WCF as an http web service. Normally a developer would write a custom client application to consume it. (It should be consumable from basically any modern language that supports web services.)

There are two service methods, one which accepts a SiteID (the unique identifier) and a dateTime; the other accepts a SystemName/SiteName/DateTime in case you prefer to query it by natural keys (site name, parameter name) rather than the GUID (globally unique identifier--a special type of identifier used in software). Both return the same result.

SiteAQIResultData CalculateSiteAQIById Guid source SiteID, DateTime,aqiDateTime);

SiteAQIResultData CalculateSiteAQIByNaturalKey(string systemName,string siteName, DateTime, AQIDateTime);

The base URL is this (replace “machine name”):

http://machinename:9888/AirVision.Services.WebServices.AQI/AQIService/

That is the URL that consuming clients use. Also if you pull that up in a web browser you'll get a friendly display page (although the generated link on there will be susceptible to the localhost problem, as described later).

The WSDL is located at the same address + "?wsdl", like this:

http://machinename:9889/AirVision.Services.WebServices.AQI/AQIService/?wsdl

The schema of the inputs/outputs are located at the base url + "?xsd=xsd0",like this:

http://machinename:9889/AirVision.Services.WebServices.AQI/AQIService/?xsd=xsd0

This defines the input/output data structures used by the service operations.

These URLs/ports (and all the other WCF options such as protocol, bindings, etc) can be changed in the service's app.config file. You can tweak it locally on your server, or the default can be updated in one in our source controls if needed.

A useful test tool called WcfTestClient.exe comes with MS VS.NET. It automatically discovers the service and lets you fill in the input arguments manually, then executes the service method, and displays the result.

However, these test tools seem to pull in the server's internal representation of the URL (e.g. http://localhost:9889/....) which causes problems if the client isn't on the same machine. To get around it you have to tweak the app.config of the service to have the actual machine name in there. A real app client can work with it as-is (no tweaking required), but these "automagical" test tools pull additional information from WCF to generate everything dynamically and they are the only case where the localhost issue is a problem.